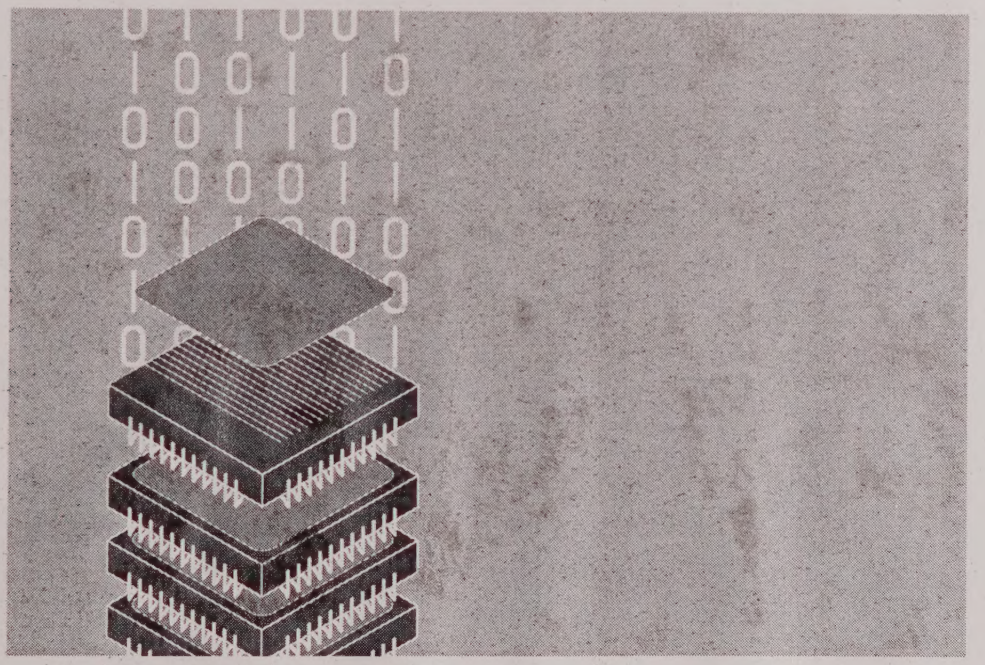
TaskLink™

UNIVERSAL PRODUCTION AUTOMATION SOFTWARE



USER MANUAL

DATA I/O

096-0129

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TaskLink™ IEEE-488 Interface

PSX or Series 1000 IEEE-488 Programmer Operations with TaskLink

System Setup and Installation Guide

DATA I/O

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System Setup and Installation

This manual provides steps for setup and installation of a PC-operated programming system that supports high-speed download programming operations over an IEEE-488 port. This system includes Data I/O's TaskLink™ Universal Production Automation Software, one of two Data I/O programmers (either a PSX or a Series 1000 parallel programmer), and a National Instruments IEEE board (GPIB-PCII/IIA).

This manual addresses the IEEE board first, then continues with IEEE setup instructions for the PSX and Series 1000 programmers. The last section provides instructions for setting the necessary TaskLink settings for running IEEE programming operations from the PC.

Setup and Installation of the IEEE Board

Follow these steps to set up and verify the operation of your IEEE board in your PC.

1. Unpack and install your IEEE board as directed in the *Getting Started with Your GPIB-PCII/IIA and the NI-488.2™ Software for MS-DOS* manual which was included with the board.

   The PSX and Series 1000 programmers support the default switch settings on the IEEE board. This is the 7210 configuration.

2. Install TaskLink software on your hard disk before connecting the IEEE cable to your PC (see the following section).

Setup and Installation of the IEEE Software

TaskLink IEEE-488 Interface versions 1.1 and higher include the software for your IEEE board (NI-488.2™ software for MS-DOS). This software is automatically installed when you install TaskLink. Install TaskLink on your PC as directed in the "Introduction" chapter of the *TaskLink User Manual* before proceeding.

After TaskLink is installed, press Ctrl + Alt + Delete to reboot your PC. At the DOS prompt, enter

ibtest

to test the IEEE board operation with your system.

Note: Your PC may contain peripheral boards, such as network interface cards, that will affect the operation of your IEEE board. Your system configuration is tested when you run ibtest. If there is a conflict in your system configuration, a message is generated. To further diagnose any compatibility problems, run **ibdiag** *as directed in the* Getting Started with Your GPIB-PCII/IIA and the NI-488.2™ Software for MS-DOS *manual included with the board. Make any necessary changes to your system, then run* **ibdiag** *again, until no problems are encountered.*

PSX or Series 1000 Setup for IEEE

Set up your parallel programmer for IEEE use as follows:

Select IEEE

1. Power down the programmer.
2. Attach the appropriate rail(s) to the control module.
3. Power up the programmer.
4. Use the arrow keys to scroll to SET PORT OPTIONS. Press ENTER.
5. Scroll to ACTIVE PORT = . If the active port is SERIAL, press ENTER ; SERIAL blinks.
6. Scroll to IEEE488 and press ENTER.
7. Press EXIT to return to the top-level menu.

Note: If you are setting up a Series 1000 programmer, skip to the following "Select Remote Control" section. (A Hardware Translator is available only on PSX programmers.)

Verify Hardware Translator Is Enabled (PSX only)

The PSX supports a hardware translator with six translation formats. Use these formats with TaskLink and the IEEE port for fastest throughput. Enabling the hardware translator greatly increases the speed of the Load RAM From File (download) operation when you use the following translation formats:

Format	Displayed Name	Code
Intel Hex-32	INTEL HEX-32	99
Intel Intellec 8/MDS	INTEL MDS	83
Intel MCS-86 Hex Object	INTEL MCS	88
Motorola 32-bit (S3 record)	MOTOROLA S3	95
Motorola EXORciser	MOTOR EXORCI	82
Motorola EXORmacs	MOTOR EXORMA	87

Verify that the PSX hardware translator is enabled as follows:

1. Scroll to SET PORT OPTIONS. Press [ENTER].
2. Scroll to HW TRANSLATORS = . If the PSX displays HW TRANSLATORS = OFF, press [ENTER]. OFF blinks. Use the arrow keys to select ON.
3. Press [EXIT] to return to the top-level menu.

Set Code to 00 00

1. Use the arrow keys to scroll to REMOTE CONTROL. Press [ENTER].
2. Scroll to REMOTE ON/OFF = *XX XX* where *XX XX* is the remote control enable/disable code for the programmer.

Note: To use the programmer with TaskLink, this code must be disabled (set to zeros: **Remote On/Off = 00 00***).*

To change the codes, press [ENTER]. The left digit of the left group blinks. Use the arrow keys to scroll through the range of hex numbers, 0 through F. When the desired number is displayed, press [ENTER]. The next digit to the right blinks. Repeat this process until the desired codes have been entered.

3. Press [EXIT] to return to the top-level menu.

Select Remote Control

Use the arrow keys to scroll to REMOTE CONTROL. Press [ENTER]. Small $^{r}_{c}$ characters appear in the upper left-hand corner of the display indicating that the programmer is in Computer Remote Control (CRC).

The PSX or Series 1000 is now ready to perform programmer operations over the IEEE port. See the following "TaskLink Setup For IEEE" section to complete your IEEE system setup.

TaskLink Setup For IEEE

1. Connect the IEEE cable to the IEEE ports of the PC and the programmer.
2. From the DOS prompt, enter

   tl a
3. From the **Options** menu, select **Programmer Type**.
4. Select your programmer.
5. From the **Options** menu, select **Programmer Port**.
6. Select IEEE488 as the port.
7. Exit TaskLink.

You can now run TaskLink in the operator (default) mode. All downloading operations will be performed over the IEEE port.

TaskLink™

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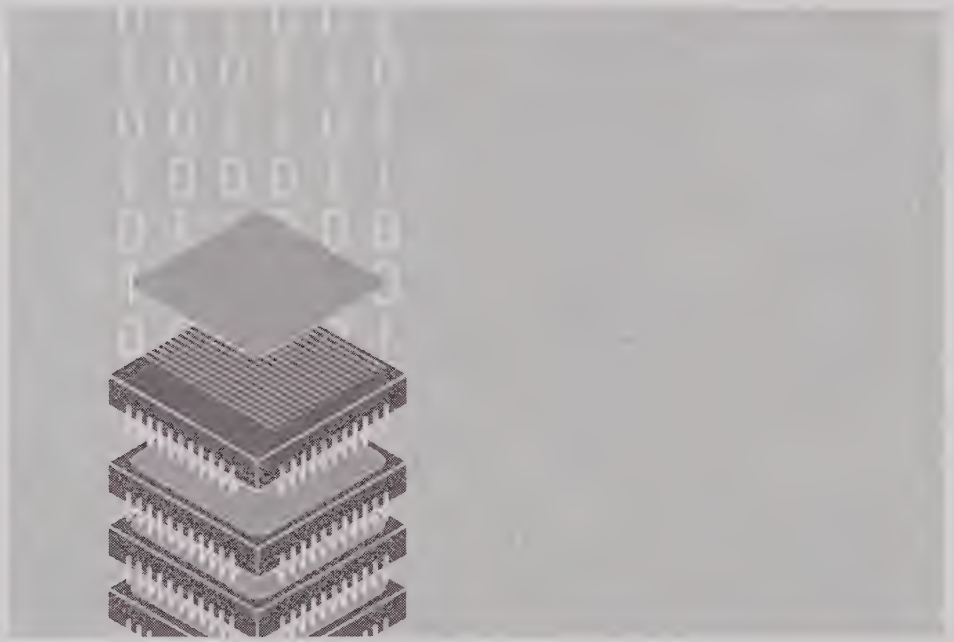

USER MANUAL

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TaskLink™

Universal Production Automation Software

User Manual

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1 Introduction

For Administrators

TaskLink™ Universal Production Automation Software provides you with a single user interface to control your programmer/handler/PC system. With TaskLink, you can standardize handler-automated, gang EPROM, or single-site programming operations by creating job setups, called Tasks, for each part you want to program. To program a group of parts for a board, you can link several Tasks together as a Kit.

For best results, we suggest that a system administrator perform the following steps:

Step	Chapter
1. Set up and install TaskLink on your PC.	Chapter 1, "Introduction"
2. Set up TaskLink for operating with your Quality Automation handler.	Chapter 1, "Introduction"
3. Create Tasks and Kits for automated programming.	Chapter 2, "Task and Kit Creation"

Chapters 3 and 4 describe how to use TaskLink to program devices with or without the use of Tasks and Kits.

When using TaskLink as part of a ProMaster system, set up and install TaskLink first before proceeding to the setup and installation of the AutoSite programmer and Quality Automation handler (see the *ProMaster Administrator Guide*).

About This Manual

The first three chapters in this manual are directed to the system administrator — someone who is responsible for the setup, installation, and trouble-free use of the programmer, handler, and TaskLink, or someone who wants to use TaskLink to program a device without creating a Task or Kit. The final chapter of this manual is directed to the system operator — the person who uses the programmer, handler, and TaskLink system on a daily basis, and uses Tasks or Kits to program devices.

We suggest you photocopy Chapter 4, "Programming With Tasks and Kits," and distribute it to all the operators who will use TaskLink to program devices. A subhead of ***Administrator*** or ***Operator*** has been included after each chapter title to designate the intended audience.

Place this manual in your *AutoSite User Manual* behind the TaskLink tab or in your programmer User Manual behind the Options tab for future reference.

Programmers

Use TaskLink with the following Data I/O® programmers:

- AutoSite™ Automated Production Programmer
- UniSite™ Universal Programmer with Site 48, SetSite™, or PinSite™
- 3900 Programming System
- 2900 Programming System
- Series 1000 Parallel Programmers
- 288A Multi Programmer

Handlers

Use TaskLink with the following Quality Automation handlers:

- Autolaser 7000
- Autolabel 3000
- Autolabel 2000
- Autolabel 1000

Package Contents

Your TaskLink package includes the following items:

- One 3.5-inch disk and one 5.25-inch disk
- A data cable with a male and a female DB25P connector
- A 9- to 25-pin adapter
- *TaskLink User Manual* with End User Registration Card
- Customer letter

Instructions for using the data cable and adapter are in the "Hardware Setup" section of this chapter.

System Requirements

TaskLink has the following system requirements:

AT, PS/2, 386 or 486 PC with the following:

- DOS 3.3 or later (DOS 5.0 recommended)
- 640K RAM (2 MB of extended RAM recommended)
- Extended memory manager such as **himem.sys** or QEMM (recommended)
- Disk caching software such as **smartdrv.sys** (recommended)
- One serial port (two required if used with a Quality Automation handler)
- Microsoft-compatible mouse (recommended)
  (bus mouse required if used with a Quality Automation handler)
- A hard disk with at least 2 MB of free disk space
- Color monitor (recommended)
- 3.5- or 5.25-inch disk drive

Data cable (supplied with TaskLink)

Data I/O programmer (see previous list)

Quality Automation handler (optional — see previous list)

Note: If you have an Autolaser 7000 and plan to use the TaskLink Laser Graphics Editor (TLGE), you need a graphics adapter (EGA, VGA, or SVGA) and a color monitor. With the TLGE, you can create drawing files that TaskLink can send to the Autolaser for marking devices.

TaskLink Installation

Install TaskLink on your PC as follows:

1. Put the program disk in the disk drive.
2. Enter

   ***drive*:install**

   where *drive* is the drive in which you placed the disk. Follow the instructions on the screen, answering any prompts.

Note: At this point, be sure to read the **read.me** *file. The* **read.me** *contains the latest information concerning this release.*

Hardware Setup

Set up your PC and programmer as follows:

1. Power down the programmer.
2. Connect one end of the supplied data cable to a serial port on the back of your PC. COM1 is the default programmer port.

Note: If your PC has a 9-pin connector, use the 9-pin adapter included with TaskLink to connect the data cable to your PC.

3. Connect the other end of the data cable to the RS-232C port on your programmer. (The RS-232C port on AutoSite is labeled Handler; on UniSite, 2900, and 3900, it's labeled Remote.)
4. Power up the programmer.

Modes of Operation

You can run TaskLink in four modes: Simulation, Batch, Administrator, and Operator. For information on Simulation and Batch modes, see the **General Help Index** in the **Help** menu.

In either Administrator or Operator mode, TaskLink can perform all programming operations from the PC using a programmer and device handler.

- **Administrator** mode starts TaskLink at the menu bar, with full access to all the commands and features available in TaskLink. Use this mode to set up TaskLink for your programmer and handler, to create Tasks or Kits, or to program a device without a Task or Kit.
- **Operator** mode (the default) starts TaskLink in the Run Task/Kit list box for simple, error-free device processing using Tasks or Kits. In this mode, operation is limited to selecting an existing Task or Kit and processing devices according to the selected Task or Kit parameters.

Mode	Access Command (enter at DOS prompt)
Administrator	**tl a**
Operator (default)	**tl**

About the Online Documentation

For more detailed information on any aspect of TaskLink, refer to the context-sensitive online documentation available by clicking the mouse cursor on the < F1 = Help > pushbutton at the bottom right of the screen, or by pressing F1 . All topics covered in online documentation are also accessible from the **General Help Index** in the **Help** menu.

Note: The menus are available only in Administrator mode.

Keys and Key Combinations

Use the keyboard and mouse to operate TaskLink. Table 1-1 describes the keys you can use to run TaskLink in Administrator mode.

Table 1-1 Keys Used in TaskLink's Administrator Mode

Keys	Functions
General Navigation Keys	
Tab and Shift + Tab	Move the highlight between fields in a dialog box. Tab moves to the next field, and Shift + Tab moves to the previous field.
↵	Accepts the current selections in a dialog box. In a multiple-line text entry field, ↵ moves the cursor to the beginning of the next line or to the next selection field.
Esc	Cancels a dialog box without saving changes and cancels an operation in process.
Space	Toggles the state of a check box.
↑ and ↓	Move the radio button or highlight in a dialog box.
Home , End PgUp and PgDn	Move the cursor to the beginning of the list, end of the list, up one screen or down one screen, respectively.
Information Keys	
F1	Accesses context-sensitive help.
F2	When pressed from the main menu screen and the process devices screen, presents a list of parameters set to non-default values. From some dialog box entry fields, F2 accesses list boxes or the file selection dialog box.
Ctrl + F1	When pressed from the main screen (Administrator mode) or the Run Task/Kit dialog box (Operator mode), checks communication between the PC and your programmer.
Ctrl + F2	When pressed from the main screen (Administrator mode) or the Run Task/Kit dialog box (Operator mode), checks communication between the PC and your Quality Automation handler.
Hot Keys	
Alt + *highlighted letter key*	Selects a pull-down menu from the main menu.

Keys	Functions
Hot Keys (continued)	
Ctrl + *letter key*	These key combinations enable you to select menu options without going to that menu.
	Select Device . . . Ctrl + D
	Load RAM from Master Ctrl + L
	Load RAM from File . . . Ctrl + F
	Create File from RAM . . . Ctrl + C
	Process Devices . . . Ctrl + P
	Run Task/Kit . . . Ctrl + T

Basic Menu Operation

Menu selections followed by ellipses (. . .) call up dialog boxes for further information. Selections without ellipses perform an action.

Dialog Boxes

A dialog box is a screen that allows you to select or set different parameters. They can contain pushbuttons, check boxes, radio buttons and entry fields.

Pushbuttons

Dialog boxes contain one or more pushbuttons, which can be selected by highlighting the pushbutton and pressing ↵, or by clicking on the pushbutton.

Check Boxes
[X]

Check boxes toggle an option on and off. Use Space, or click on the check box to toggle a selection on or off.

Radio Buttons
(•)

Radio buttons select a particular option from a list of mutually exclusive options. Use the arrow keys or click on the option to select a radio button option.

Entry Fields
field_label: **L__**

Entry fields allow you to input information TaskLink needs. When highlighted, text entered at the keyboard goes into the entry field.

Getting Started

To start TaskLink, perform the following steps.

1. Make sure your programmer is in computer remote control (CRC). For information on how to put your programmer in CRC, refer to the following "Entering Computer Remote Control" section.

Note: When the cable is connected to the Handler port (AutoSite), or the Remote port (UniSite, 2900, and 3900), and nothing is connected to the Auxiliary (AutoSite) or Terminal port (UniSite, 2900, and 3900), the programmer will automatically boot up in CRC unless some parameters have been set that override this (see your programmer User Manual for more information).

2. At the DOS prompt, enter

   tl a

   Figure 1-1 shows the TaskLink main screen. The **Options** menu is shown.

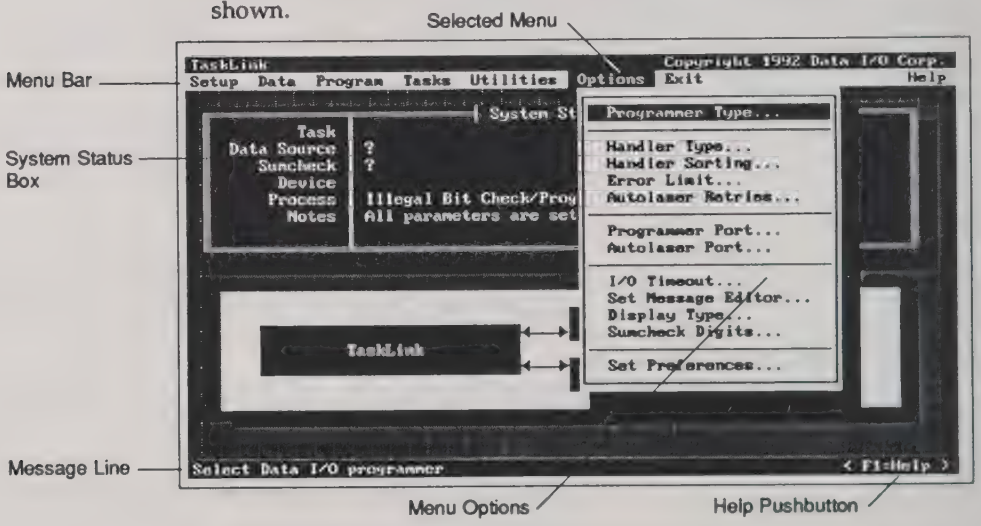

Figure 1-1
TaskLink
Main Screen

3. Access the **Options** menu.

4. Select **Programmer Type**, highlight the programmer you are using, and press ↵ or click on the < OK > pushbutton.

   When you select a programmer from the list, TaskLink reconfigures to work with that programmer and loads the programmer messages.

Note: This setting determines the programmer that TaskLink uses as the default programmer.

TaskLink and your programmer should now be communicating and ready to operate.

To confirm that communication between your programmer and PC is established, press Ctrl + F1 .

If TaskLink is communicating with your programmer, a green box appears with the text, `Contact with programmer established.`

If TaskLink is not communicating with your programmer, a red box appears with the text, `Attempting to contact programmer . . .` For help, see the "Establishing Communication" section later in this chapter.

Programmer Setup

Note: If you are using a handler, see the "Handler Setup" section for information on how to set up TaskLink to work with your handler.

System parameters are set from the **Options** menu (see Figure 1-1). To access the **Options** menu, press Alt + O or click on **Options** in the menu bar.

Programmer Port

To set the programmer port parameters, select **Programmer Port.**

TaskLink's programmer port settings must match the settings of the programmer's serial port (labeled Handler on AutoSite and Remote on UniSite, 2900, and 3900). For optimum performance, set the programmer port to the fastest baud rate supported by both the programmer and TaskLink (19200).

The recommended programmer port settings are

Port:	COM1 or COM2
Baud Rate:	19200 (See your programmer User Manual for instructions on how to change the default baud rate (9600) on your programmer to 19200.)
Parity:	None
Data Bits:	8
Stop Bits:	1

Press F1 or click on the < F1 = Help > pushbutton for further information on the port parameters.

Set Message Editor

Use the message editor to create messages for TaskLink to display between running the Tasks in a Kit. You can set up TaskLink to run any ASCII editor you want. For more information, see the "Message Editor" section in Chapter 2, "Task and Kit Creation."

To set the message editor, select **Set Message Editor**. The file selection dialog box appears. Select the .exe file of the ASCII editor of your choice. Press ↵ or click on the < OK > pushbutton.

Note: Make sure to enter a complete path and filename. TaskLink does not search the path described by the DOS PATH environment variable.

Set Other System Parameters

At this time you may want to set other system parameters available in the **Options** menu such as,

- I/O Timeout . . .
- Display Type . . .
- Sumcheck Digits . . .
- Set Preferences . . .

Establishing Communication

If TaskLink cannot contact the programmer, check the following:

- Is the RS-232C cable connected properly?
- Do the TaskLink programmer port settings match the programmer's?
- Is the programmer in computer remote control?

RS-232C Cable

The RS-232C cable supplied with TaskLink works with any PC serial port and any supported Data I/O programmer.

Make sure the cable is connected to the correct port on the PC (the port selected in **Programmer Port** from the **Options** menu).

For AutoSite, make sure the cable is connected to the port labeled Handler. If a connection is established on the Handler port of AutoSite, the Handler LED on the front of the control unit is lit.

For UniSite, 2900, and 3900 programmers, make sure the cable is connected to the port labeled Remote. For UniSite, make sure the button next to the Remote port is in the correct position. If the button is in the correct position, the light labeled REMOTE on UniSite's front panel is lit.

Port Settings

The TaskLink programmer port settings must match the programmer's serial port settings (see your programmer User Manual for instructions on how to change the port defaults). For optimum performance, set the baud rate of the programmer and TaskLink's programmer port settings to the fastest baud rate supported by the programmer and TaskLink (19200). To change the TaskLink programmer port settings, select **Programmer Port** from the **Options** menu. Press F1 or click on the < F1 = Help > pushbutton for more information.

Entering Computer Remote Control

To establish communication between TaskLink and the programmer, the programmer must be in CRC. The procedure for entering CRC depends on the type of programmer you are using.

AutoSite, UniSite, 2900, 3900

To operate the AutoSite, UniSite, 2900, and 3900 programmers with TaskLink, set the following programmer parameters as directed below. Once these parameters have been set, AutoSite, UniSite, the 2900, and 3900 automatically power up in CRC.

- **User Menu Port** should be set to **Remote**.
- **Power-up CRC Mode** should be set to **Yes**.
- **Power-up Default Terminal Type** should be set to **DEC VT100 (ANSI 3.64)**.

Set the parameters as follows:

1. Power down the programmer.
2. Connect the RS-232C cable from the PC programmer port to the programmer's Auxiliary (AutoSite) or Terminal (UniSite, 2900, 3900) port. **Make sure nothing is connected to the programmer's Handler (AutoSite) or Remote (UniSite, 2900, 3900) port.**
3. In TaskLink, select **VT100 on Programmer Port** from the **Utilities** menu.
4. Power up the programmer and wait for the banner screen to appear.
5. If the programmer terminal type is DEC VT100 (ANSI 3.64) press ↵ and go to step 8.

   If the programmer terminal type is not DEC VT100 (ANSI 3.64) press Y ↵.
6. At the terminal type selection prompt, press 1 ↵.
7. At the save as default prompt, press Y ↵.
8. Set the **User Menu Port** parameter (under More Commands/Configure System/Edit/Communication) to **R** and press ↵.
9. Move the RS-232C cable to the programmer Remote port.
10. Set the **Power-up CRC Mode** parameter (under More Commands/Configure System/Edit/Interface) to **Y**.

11. Save the configuration as the powerup default from More Commands/Configure System/Save.
12. Press [Esc] [Ctrl] + [W] to reboot the programmer.
13. Press [Alt] + [F1] to exit the TaskLink terminal emulator.

The programmer should be ready to communicate with TaskLink.

Series 1000

Make sure the RS-232C port is the active port on the Series 1000. Then, from the top-level menu, select **Remote Control** from the programmer front panel. Press [Enter].

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From the top-level menu, select **RS232 Port**. Then select **Computer Control** from the programmer front panel. Press [Enter].

Handler Setup

To establish communication between TaskLink and your Quality Automation handler, set the handler parameters in the TaskLink **Options** menu. You need to do this only for the initial setup of your handler (and anytime you switch handlers).

1. Power up the PC and enter **tl a** from the DOS prompt.
2. Access the **Options** menu.

Note: All of the following handler parameters are set in the **Options** *menu.*

Handler Type

1. Select **Handler Type**.
2. Select the appropriate handler or handler setting.

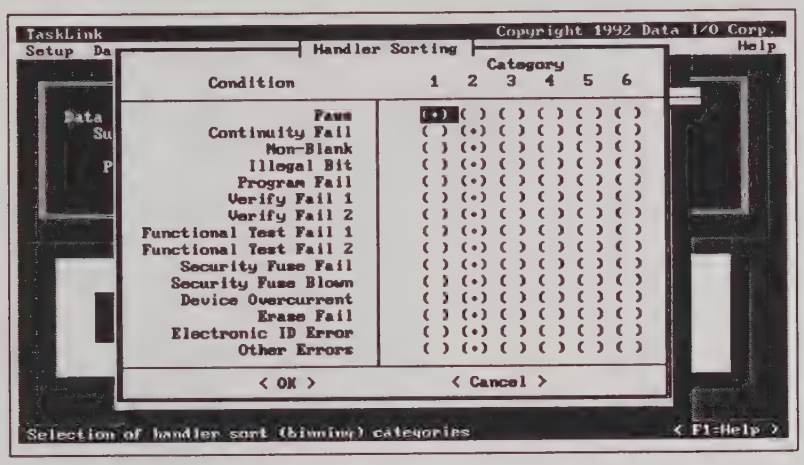
Note: This setting determines the handler that TaskLink uses as the default handler.

Handler Sorting

1. Select **Handler Sorting**. The Handler Sorting dialog box appears (see Figure 1-2).
2. Assign a category number (1 through 6) to 15 different conditions. Press [F1] for more information.

Note: For information on setting the binning parameters on your handler, see your handler User Manual. When setting up the binning parameters on your handler, use the TaskLink category numbers to specify device distribution into the bins.

Figure 1-2
Handler Sorting Dialog Box



Error Limit

1. Select **Error Limit**. The Consecutive Error Limit dialog box appears.
2. Enter a number to specify how many consecutive errors (of the same kind) the handler should allow before stopping. Zero (0) equals a no-limit setting.

Retries

Note: If the selected Handler Type is an Autolabel 1000, 2000, or 3000, the retries menu option is **Autolabel Retries**.

If the selected Handler Type is an Autolaser 7000, the retries menu option is **Autolaser Retries**.

If the selected Handler Type is No handler used, LPT1, LPT2, or LPT3, the retries menu option is not supported and does not appear.

Select the retries menu option. The retries dialog box appears. You can select from the following retry conditions.

Never retry	The handler does not try to reprogram a device that has not been successfully programmed.
Retry continuity test failures only	The handler tries to reprogram devices that have a continuity test failure only.
Retry all failures	The handler tries to reprogram devices that have not been successfully programmed.

Port Settings

Note: If the selected Handler Type is an Autolabel 1000, 2000, or 3000, the port menu option is **Autolabel Port**.

If the selected Handler Type is an Autolaser 7000, the port menu option is **Autolaser Port**.

If the selected Handler Type is No handler used, LPT1, LPT2, or LPT3, the port menu option is **Host Port**.

Select the port menu option. The port dialog box appears.

The TaskLink handler port settings must match the handler's Remote port settings. For optimum performance, set the baud rate on the handler and in TaskLink to the fastest baud rate supported by the handler and TaskLink (19200).

Connect the Cable

1. Connect an RS-232C cable to a serial port (default COM2) on the PC.
2. Connect the other end of the RS-232C cable to the Remote port on the handler.

Note: Cable connection from the PC to the programmer is covered in the "Hardware Setup" section.

Establishing Communication

To establish communication between TaskLink and your Quality Automation handler, check the following:

- Is the RS-232C cable connected properly?
- Do the TaskLink port settings match the handler's?

  For optimum performance, set the baud rate on the handler, and in TaskLink, to the fastest baud rate supported by the handler and TaskLink (19200). See your handler User Manual for instructions on how to change the default settings on the Remote port. The Autolabel 3000 and Autolaser 7000 Remote port default settings are listed below.

  - 9600 baud
  - 8 data bits
  - No parity
  - 1 stop bit
- Is the handler in CRC?

  To enter CRC on the handler, press [LOW CASE] + [R] from the handler Main Menu.

If the cable is connected, the TaskLink and handler port settings match, and your handler is in CRC, TaskLink and your handler should be communicating and ready to operate.

To confirm that communication between your handler and TaskLink is established, press Ctrl + F2 .

If TaskLink is communicating with your handler, a green box appears with the text, `Contact with Autolabel` (or `Autolaser`) `established .`

If TaskLink is not communicating with your handler, a red box appears with the text, `Attempting to contact Autolabel` (or `Autolaser`) `. . . .`

2 *Task and Kit Creation*

For Administrators

Tasks and Kits allow you to run TaskLink in **Operator** mode (see Chapter 4, "Programming With Tasks and Kits"), starting Tasklink directly from the Run Task/Kit dialog box, selecting the Task or Kit, and processing devices.

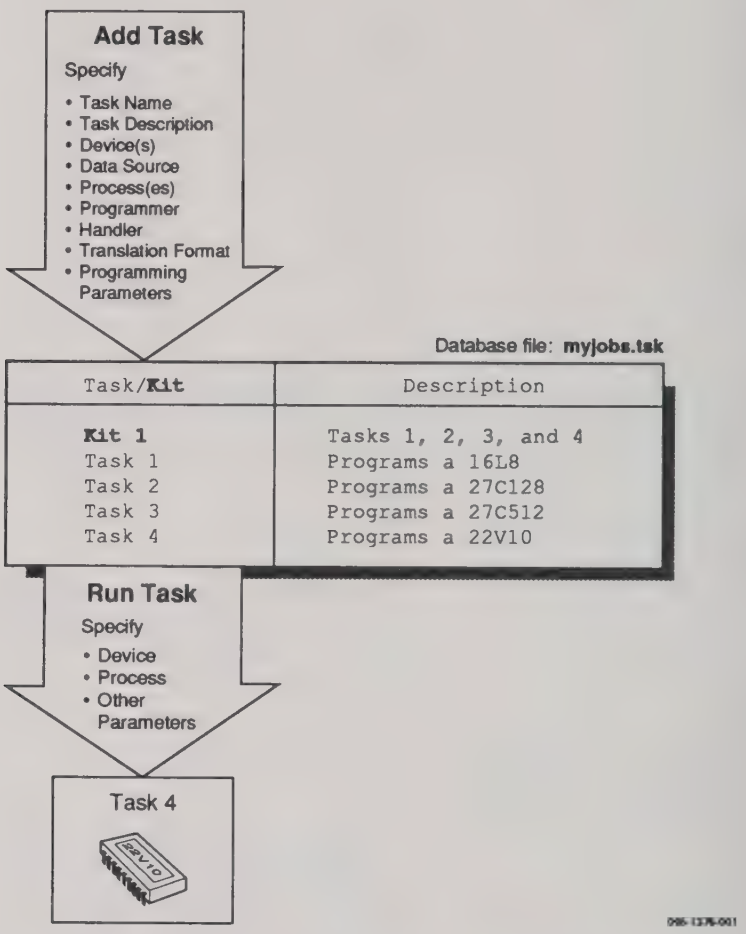
What is a Task?

A Task is a job setup containing all the information necessary for programming and/or testing a particular part. A Task records all the parameters of the job setup from the device type and data file to be entered, to the label text to print and place on the part. Once a Task is set up, no further setup is required. When an operator selects the Task from the Run Task/Kit dialog box, only a few final selections need to be made. Figure 2-1 shows the concept of a Task from creation to use.

What is a Kit?

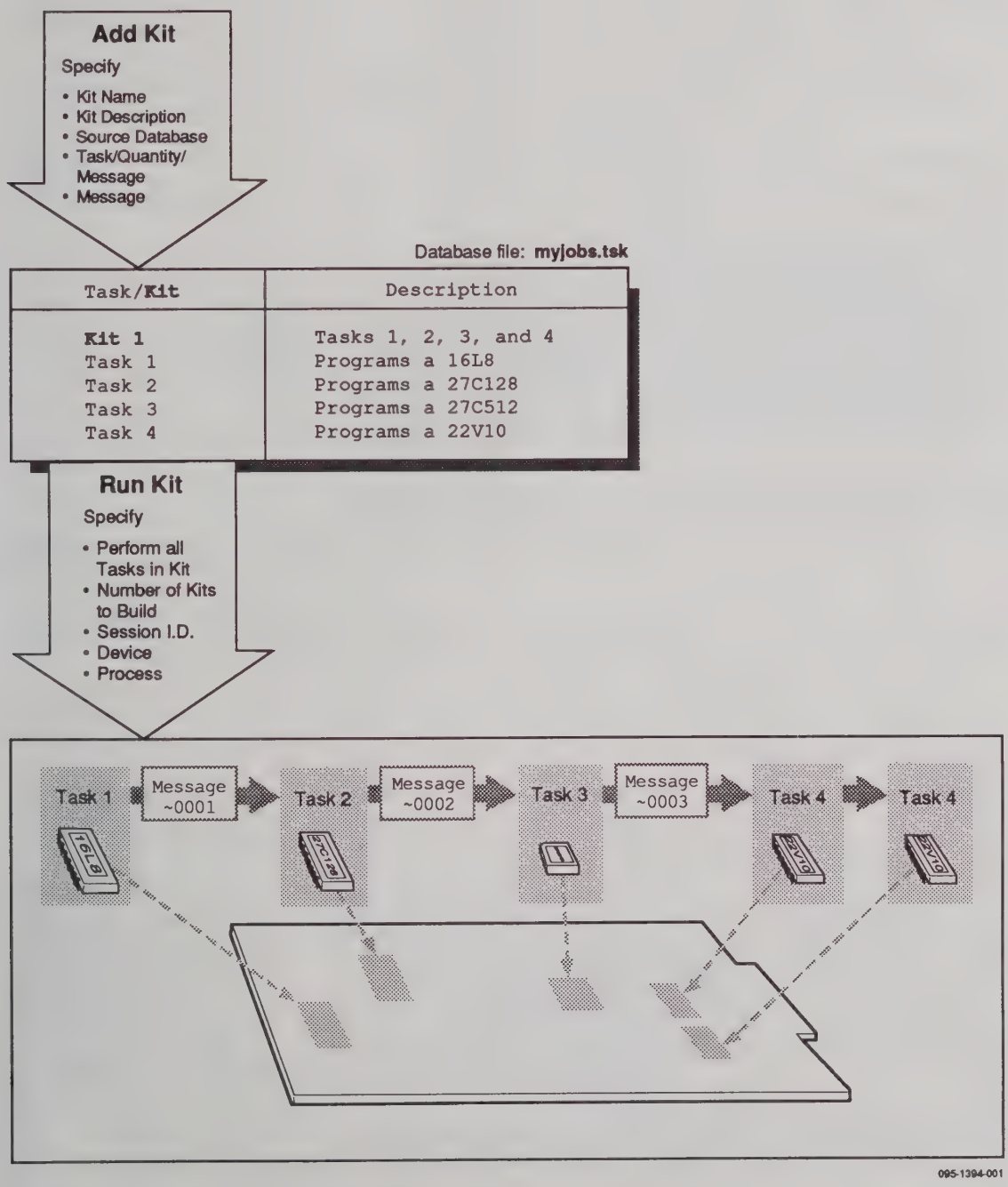
A Kit is a group of Tasks you set up to program the various parts you need to build a particular product board. A Kit can contain up to 20 Tasks. All the Tasks in a Kit must be from the same database file (called a Source Database in the Kit dialog box), but the Kit can be stored in the Source Database or a different database file. When you create a Kit, you can specify the number of devices you want to program with each Task. Then, when you run the Kit, you can specify the number of Kits you want to build.

Figure 2-1
Task Flowchart



For example, say your board requires four different parts: one each of parts 1, 2, and 3; and two of part 4. After creating a Task for each part (Task 1, 2, 3, and 4), you create a Kit that calls out Tasks 1, 2, and 3 at a quantity of one, and Task 4 at a quantity of two. When you run the Kit, TaskLink prompts for the number of Kits to build. If you enter 10, TaskLink directs the programmer and handler to program ten Task 1 devices (1 x 10), then ten Task 2 devices (1 x 10), then ten Task 3 devices (1 x 10), and then 20 Task 4 devices (2 x 10). The relationship between Tasks and Kits is shown in Figure 2-2.

Figure 2-2
Kit Flowchart



The Database File

Tasks and Kits are stored in a file with a .tsk extension. This file can be named any valid DOS filename. Throughout this manual, the .tsk file is referred to as the database file.

You can create as many .tsk files as you want; however, all the Tasks in a Kit must be from the same database file. You can have up to 2500 Tasks and Kits in any database file.

User-defined Messages

When creating a Kit, you can create messages to be displayed before each Task is run. In the above example, you might want to display a message that tells the operator to load a certain device type or adjust the handler in some way before programming each device. The user-defined messages feature is described in more detail in the "Message Editor" section on page 2-16.

Getting Started

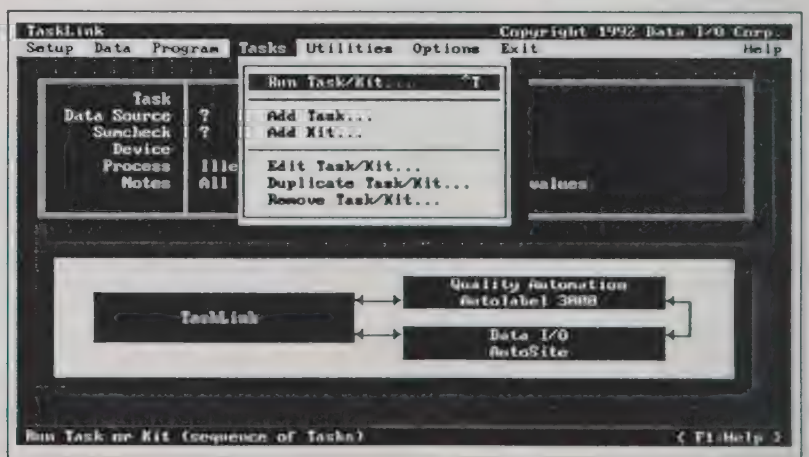
To create a Task or Kit, enter **tl a** at the DOS prompt to start TaskLink in Administrator mode.

Note: Press Esc *at any time to exit any menu or dialog box without saving. Press* Alt + X X *from the menu bar to exit TaskLink.*

The Tasks Menu

To access the **Tasks** menu, press Alt + T or click on the **Tasks** menu. The **Tasks** menu is shown in Figure 2-3. You can run, add, edit, duplicate, and remove Tasks or Kits from the **Tasks** menu.

Figure 2-3
Tasks Menu

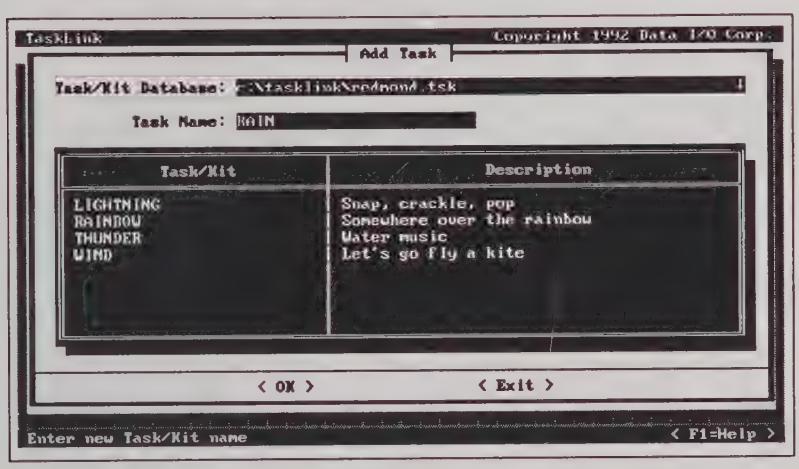


Add Task/Kit

Select the **Add Task** or **Add Kit** option. The Add dialog box appears (see Figure 2-4) and the cursor is in the Name entry field.

The Tasks and Kits available in the current Task/Kit database file (shown in the Task/Kit Database entry field at the top of the dialog box) are listed in the Task/Kit list box.

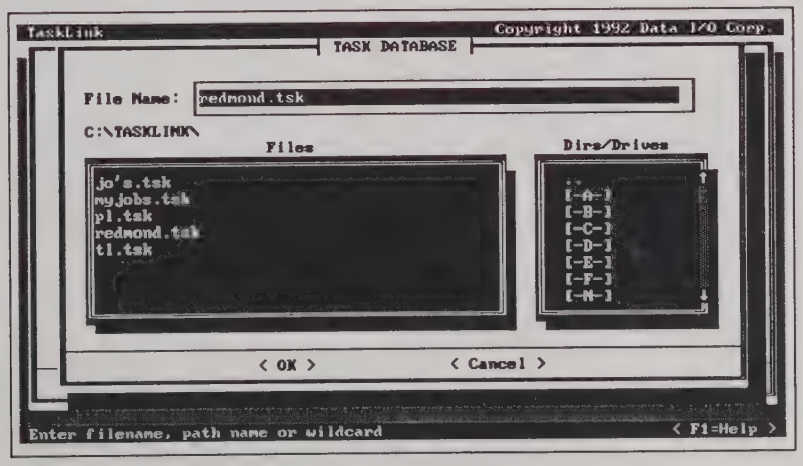
Figure 2-4
Add Task/Kit Dialog Box



Select Database File

To change to a different Task/Kit database file (.tsk), press Shift + Tab or click on the Task/Kit Database entry field to select it. Enter the path and filename of a different database file or access the file selection dialog box (see Figure 2-5) by pressing F2 or double-clicking on the Task/Kit Database entry field. Press ↵ or click on the < OK > pushbutton to accept the new database filename.

Figure 2-5
File Selection Dialog Box

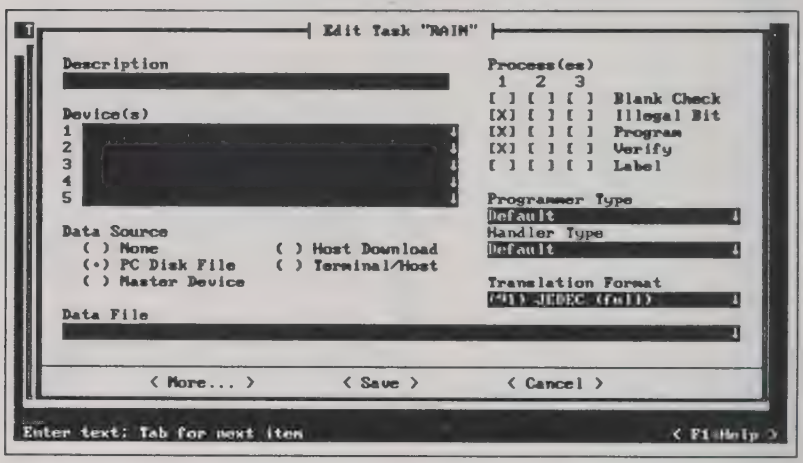


Name Task/Kit

Select the Name entry field and enter a name for the Task or Kit you are defining. A name can be up to 25 printable characters long. You may want to name the Task or Kit a particular part number. Press ⏎ or click on the < OK > pushbutton to accept the Add dialog box inputs.

- If you are adding a Task, the Edit Task dialog box appears (see Figure 2-6). Go to the following "Select Task Parameters" section to continue.
- If you are adding a Kit, the Edit Kit dialog box appears. Go to the "Select Kit Parameters" section on page 2-14 to continue.

Figure 2-6
Edit Task Dialog Box



Select Task Parameters

The following Task parameters are set in the Edit Task dialog box shown in Figure 2-11. When TaskLink enters this dialog box, the cursor is in the Description entry field.

Describe Task

Enter a description for the Task you are defining. This description appears in the Task/Kit list box and is for your reference. It is typically a further explanation of the Task setup. For example, a Task name of 701-2657-009 could have a description of Part A of Board C for *product_name*. The Task description can contain up to 40 printable characters.

Specify Task-specific Device List

1. Select the Devices entry field.
2. Press F2 , double-click on the Devices entry field, or click on the arrow at the right side of the Devices entry field. The Select Device dialog box appears.

You can use the following three kinds of device selection methods to create a Task-specific device list.

- Device names as they appear on the device list (including Keep Current and Extended Algorithms).
- Custom devices (see the Custom Device File topic in the **General Help Index** in the **Help** menu).
- Wildcard device selection (see the Task Device Type(s) topic in the **General Help Index** in the **Help** menu).

3. Select the desired device manufacturer. A list of devices appears.
4. Select the desired device. TaskLink returns to the Devices entry field in the Edit Task dialog box.

You can continue selecting up to five specific devices or enter device wildcards from which a Task-specific device list is created. For more information, press F1 .

Select Data Source

Select the desired data source. When you select PC Disk File, Host Download, or Terminal/Host, a Translation Format entry field appears to the right, and another entry field appears below the Data Source radio button field. This additional entry field is either of the following:

- Data File
- Host Command

Translation Format Entry Field

After data is created, it is stored in a particular data translation format. When downloading from a host or PC disk file, you need to set up TaskLink to use the same translation format.

To select a different translation format, select the Translation Format entry field, access the Translation Format list box, and use the arrow keys or the scroll bar to scroll through the list and select the translation format you want. TaskLink returns to the Edit Task dialog box and displays the current translation format setting.

Note: For information on Translation Formats see your programmer User Manual.

Data File Entry Field

Type the data file you want or access the file selection dialog box and select it. When you select a file, TaskLink returns to the Edit Task dialog box and displays the path and filename.

Host Command Entry Field

Type a host command to be sent to the host when you select **Run Task/Kit** from the **Tasks** menu.

Select Process(es)

The Process(es) check box area of the Edit Task dialog box lists the operations that can be performed on a device. The three columns of check boxes represent three different combinations of operations, or process(es), you can set up.

When at least one operation is selected in more than one column, a list box appears when you select **Run Task/Kit** from the **Tasks** menu. You can then select which process you want to perform on your devices.

Highlight the desired operation(s) in each column. Press Space to enable (check) and disable (uncheck) the operations, or click on the check boxes to toggle their state.

Select Programmer

To select a different programmer, select the Programmer Type entry field, access the Programmer Type list box, and select the programmer you want. TaskLink returns to the Programmer Type entry field and displays the currently selected programmer.

Note: When Default is selected, TaskLink uses whatever programmer is selected (in the **Options** *menu) at the time you select* **Run Task/Kit** *from the* **Tasks** *menu. Chapter 1, "Introduction," describes how to set the* **Programmer Type** *in the* **Options** *menu.*

Select Handler

To select a different handler, select the Handler Type entry field, access the Handler Type list box, and select the handler or handler setting you want. TaskLink returns to the Handler Type entry field and displays the currently selected handler or handler setting.

Note: When Default is selected, TaskLink uses whatever handler is selected (in the **Options** *menu) at the time you select* **Run Task/Kit** *from the* **Tasks** *menu. Chapter 1, "Introduction," describes how to set the* **Handler Type** *in the* **Options** *menu.*

More Task Parameters

To set any of the following additional Task-specific device parameters (see Figure 2-7), select the < More . . . > pushbutton.

Device Parameters

General parameters, for all devices; Memory parameters, for memory devices; and Logic parameters, for logic devices. Most of the time, you will not need to change any of the device parameters.

Handler Parameters

Autolabel or Autolaser parameters such as package, pin 1 orientation, and label text (see the following "Autolaser 7000 (graphics) Parameters" section for more specific information on setting up the Autolaser 7000).

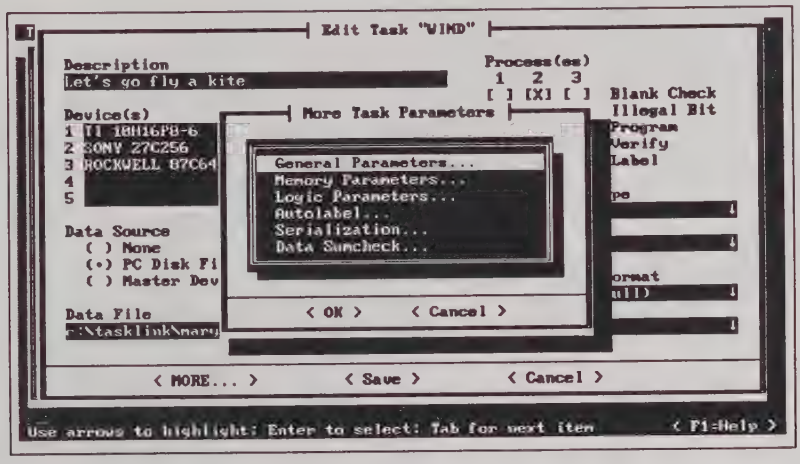
Serialization Parameters

Serialization method, RAM serialization, keep next number, edit starting number, and next serial number settings (see the "Serialization" section on page 2-11 for more information).

Data Sumcheck

TaskLink displays a message if the sumcheck is different from the one entered.

Figure 2-7
< More . . . > List Box

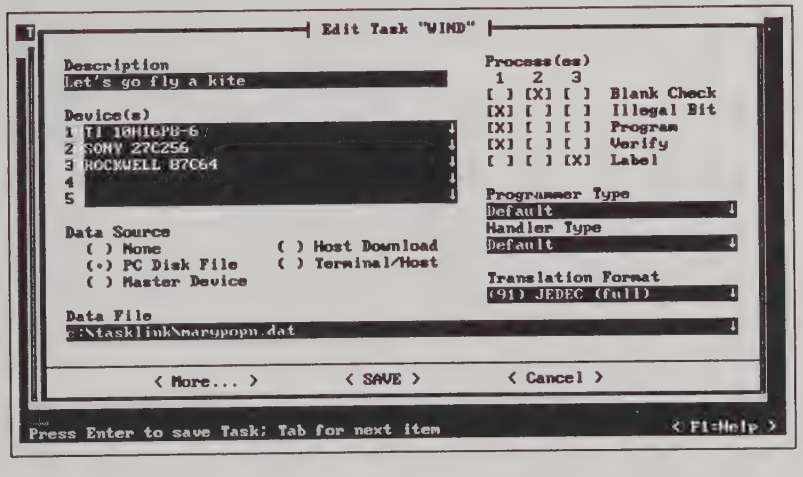


Save Task

To accept the selections displayed in the Edit Task dialog box, select the < Save > pushbutton (see Figure 2-8). TaskLink returns to the Add Task dialog box. Your Task name and description appear in the Task list and the cursor is in the Task Name entry field.

The creation of your Task is now complete. To create more Tasks, start again at the "Name Task/Kit" section on page 2-6. To try out your Task, select **Run Task/Kit** from the **Tasks** menu.

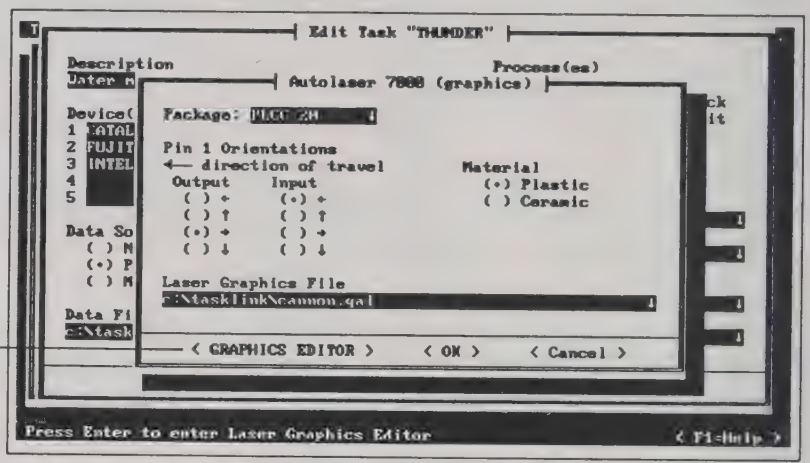
Figure 2-8
Completed Edit Task Dialog Box



Autolaser 7000 (graphics) Parameters

The TaskLink Laser Graphics Editor (TLGE) is a drawing program included with a Quality Automation Autolaser 7000 purchase for creating graphics files to use in marking your devices. Figure 2-9 shows the Autolaser 7000 (graphics) dialog box.

Figure 2-9
Autolaser 7000 (graphics) Dialog Box



To start the TLGE, select the < Graphics Editor > pushbutton. See your *TaskLink Laser Graphics Editor User Manual* for details on how to use this drawing software.

After creating and generating a drawing file, enter the filename in the Laser Graphics File entry field. You don't need to enter the file extension. TaskLink sends the .qal file to the Autolaser for marking the devices.

Serialization

When programming devices, you may want to number them consecutively. TaskLink includes a serialization program, called **serializ.exe**, that generates a serial number for each device that is successfully programmed. This serial number can be programmed into the device, and printed on a label to be placed on the device.

To enable printing a serial number on a label, enter two or more consecutive percent signs (%) in the Autolabel or Autolaser text field. You must enter one percent sign for each digit specified with the **serializ.exe** length (-l) command line parameter.

The following "serializ.exe" section describes the features of **serializ.exe**, and is followed by "Serialization Parameters," a section that describes how to use **serializ.exe** in TaskLink.

Note: You can write your own external serialization program (see the **General Help Index** *in the* **Help** *menu for more information).*

serializ.exe

With the TaskLink serialization program (**serializ.exe**), you can specify a serial number's device address, format, length, byte order, increment value, and format of the serial number printed on the device label.

For gang or set programming, you can specify the number of devices in the set, and **serializ.exe** divides programmer RAM by the number and size of the devices and places serial numbers at the same address in each device.

See Table 2-1 for a list and explanation of the command line parameters supported by **serializ.exe**.

For example, to specify a 10-character ASCII hexadecimal serial number at address 12345 (hexadecimal), increase the serial number by an increment of 2 for each device programmed, and print each serial number on the device label (in hexadecimal), the Program entry field in the **Setup/Serialization** dialog box might look like this:

serializ.exe -l10 -fh -a12345 -i2 -th

Table 2-1
Command Line Parameters for ***serializ.exe***

Parameter	Explanation
-a	Address of serial number. Hexadecimal value indicating the device address of the serial number. For example, **-a12345** places the serial number at hexadecimal address 12345. **Default:** Zero (-a0)
-f	Format of serial number. Format of the serial number. The following three formats are supported. -fb = Binary -fd = ASCII decimal -fh = ASCII hexadecimal **Default:** Binary (-fb)
-i	Increment to increase serial number by. Increment value (in decimal) for increasing the serial number. For example, **-i2** increases the serial number by 2 for each device programmed. **Default:** 1 (-i1)
-l	Length of serial number. Number of bytes the serial number occupies in the device. The following settings are supported. 1 through 4 Binary 1 through 20 ASCII **Default:** 2 (-l2)
-n	Number of devices in set (gang/set programming). Serial numbers are generated for each device. Programmer RAM is divided by the number and size of devices and serial numbers are placed at the same address in each device. The maximum allowed is 30. **Default:** 1 (-n1)

Parameter	Explanation
-o	Byte order of serial number. Serial numbers are placed in RAM with the most significant bit (MSB) or the least significant bit (LSB) at the first (lower) RAM address. This setting applies to binary and ASCII formats. The settings are -om = MSB at first RAM address (Motorola-style) -oi = LSB at first RAM address (Intel-style) **Default:** MSB at first RAM address (-om)
-s	Sumcheck calculation flag. Calculates a new RAM sumcheck based on the sum of the serial number bytes and the initial sumcheck value provided by TaskLink. Only meaningful if the initial RAM data (before serializing begins) contains zeroes in the serial number position(s).
-t	Label text format. Serial number printed on label can either be decimal or hexadecimal. *Note: To enable printing a serial number on a label, enter two or more consecutive percent signs (%) in the Autolabel or Autolaser text field. You must enter one percent sign for each digit specified with the* **serializ.exe** *length (-l) command line parameter.*

Serialization Parameters

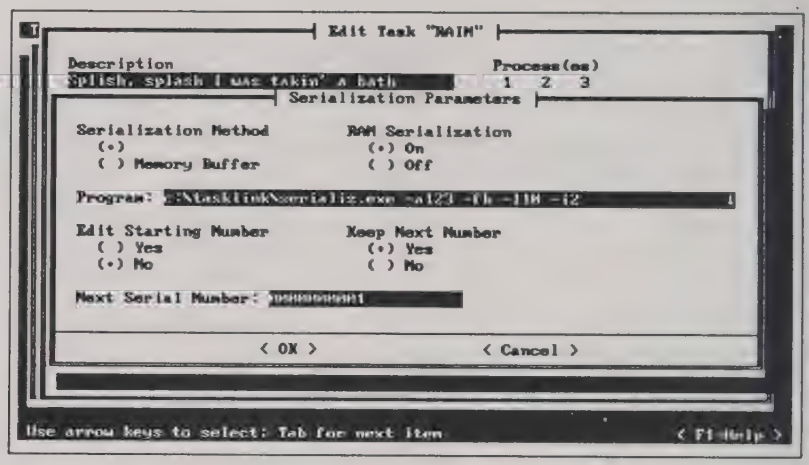
Figure 2-10 shows the Serialization Parameters dialog box. To use **serializ.exe** to place a serial number in programmer RAM, set the parameters as follows:

Parameter	Setting
Serialization Method	File
RAM Serialization	On
Program	**serializ.exe** *
Edit Starting Number	No
Keep Next Number	Yes
Next Serial Number	*starting_serial_number*

* *Include any command line parameters you want, as described in the previous section.*

Note: For compatibility with external serialization programs you may have written for HandlerLink™, select Memory Buffer for the Serialization Method.

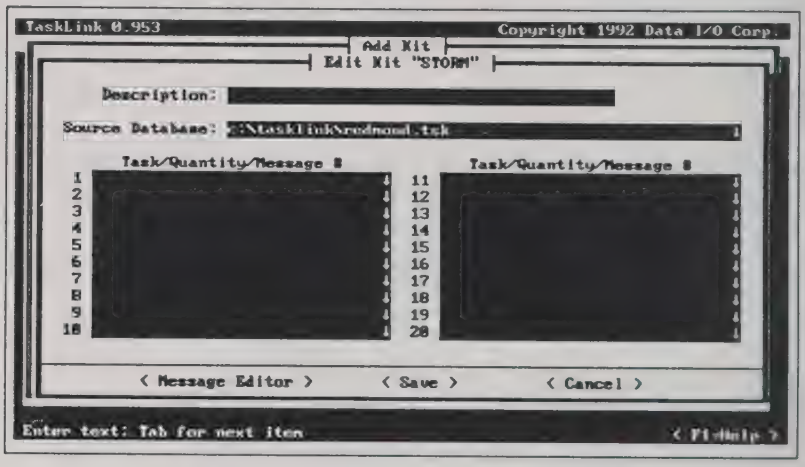
Figure 2-10
Serialization Parameters Dialog Box



Select Kit Parameters

The following Kit parameters are set in the Edit Kit dialog box (see Figure 2-11). When TaskLink enters this dialog box the cursor is in the Description entry field.

Figure 2-11
Edit Kit Dialog Box



Describe Kit

Enter a description for the Kit you are defining. The description can be up to 40 printable characters. This description appears in the Task/Kit list box and is for your reference. It is typically a further explanation of the Kit. For example, a Kit name of "*product_name* Logic," could have a description of "Logic devices for Main Board."

Specify Source Database

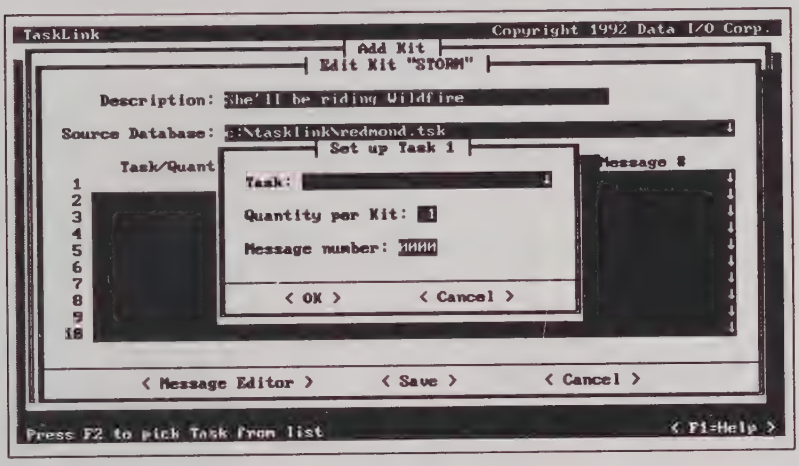
The Source Database is the .tsk file containing all the Tasks you want to use in the Kit you are creating. A Kit can only access one Source Database. The Source Database can be different from the Kit database (shown in the Task/Kit Database entry field of the Add Kit dialog box).

To change to a different Source Database, enter the path and filename in the Source Database entry field, or press F2 , double-click on the Source Database entry field, or click on the ↓ to the right of the entry field, to access the file selection dialog box. Press ↵ or click on the < OK > pushbutton to accept the new database filename.

Set up Task in Kit

Select a line of the Task/Quantity/Message # entry box and access the Set up Task dialog box (see Figure 2-12).

Figure 2-12
Set up Task Dialog Box

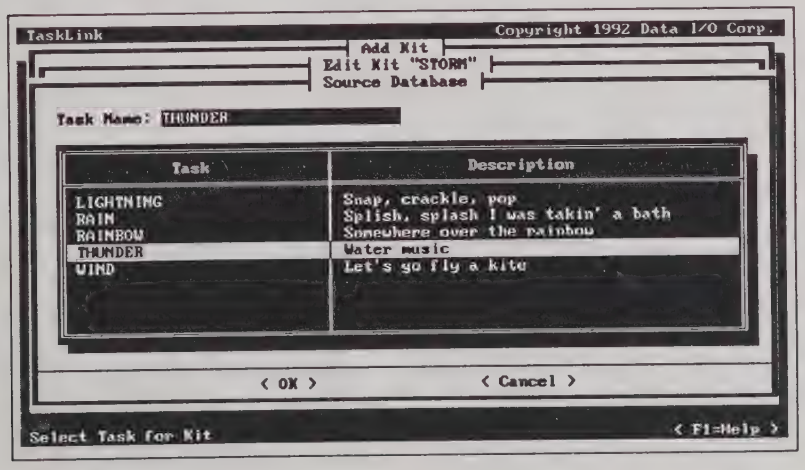


Select Task

Enter the name of the Task you want your Kit to run first, or access the Source Database list box and select the Task you want. Figure 2-13 shows the Source Database list box.

When you select a Task, TaskLink displays the selected Task in the Task entry field.

Figure 2-13
Source Database List Box



Set Quantity

Select the Quantity per Kit entry field and enter the number of devices per Kit (normally one) you want to program with the selected Task before proceeding to Task 2.

For example, if you were adding Task 4 to your Kit and you needed two of the parts programmed with Task 4 (see Figure 2-2 on page 2-3), you would enter 2 in the Quantity per Kit entry field.

Set Message Number

Select the Message number entry field and enter a four-digit number corresponding to a user-created message you want TaskLink to display **before** running Task 1 (see the following "Message Editor" section).

Note: This is an optional feature; if you don't want TaskLink to display a message before running a Task, enter zeros (0000).

To add another Task to this Kit, select another line of the Task/Quantity/Message # entry box and go to the previous "Set up Task in Kit" section.

Message Editor

Once you have specified an ASCII editor in the **Set Message Editor** option of the **Options** menu (see the "Set Message Editor" section in Chapter 1 "Introduction"), you can access your editor by selecting the < Message Editor > pushbutton in the Edit Kit dialog box.

TaskLink runs the selected ASCII editor and looks for a file called tl.msg. When the editor has created or accessed the tl.msg file, type in the tilde (~) followed by the four digits you entered in the Message number entry field. Press ↵ and write the message you want TaskLink to display before running that Task.

For example,

~0023
\bTask 1\b

Before you start Task 1

\b=>\b Adjust handler
\b=>\b Clear receiving tubes
\b=>\b Load input tubes

Note: The \b code toggles bolding of text (the effect of this code does not wrap — if the text you want to bold wraps to the next line, you must enter the \b at the beginning of the next line).

User-created message specifications are described below.

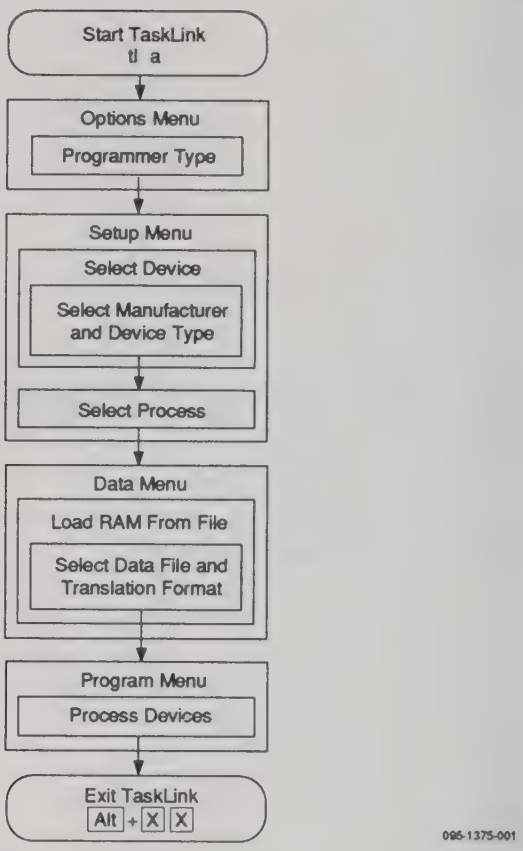
- Message file must be an ASCII text file.
- Message file must be called tl.msg.
- Each message must begin with a tilde (~), followed by four digits; for example, ~0023. The tilde and four-digit number must be on a line by themselves. The message includes all the text after the tilde and four digits, to the next tilde in the file.
- File line length can be up to 66 characters.
- Spacing and formatting is maintained (WYSIWYG) unless you use \b (for bold). The \b does not appear on the screen and all characters move to the left two spaces for every \b in the line.

3 *Programming without Tasks or Kits*

For Administrators

You can use TaskLink to process devices without creating a Task. Figure 3-1 shows a flowchart of a typical non-Task programming operation.

Figure 3-1
Flowchart of Programming without Tasks or Kits



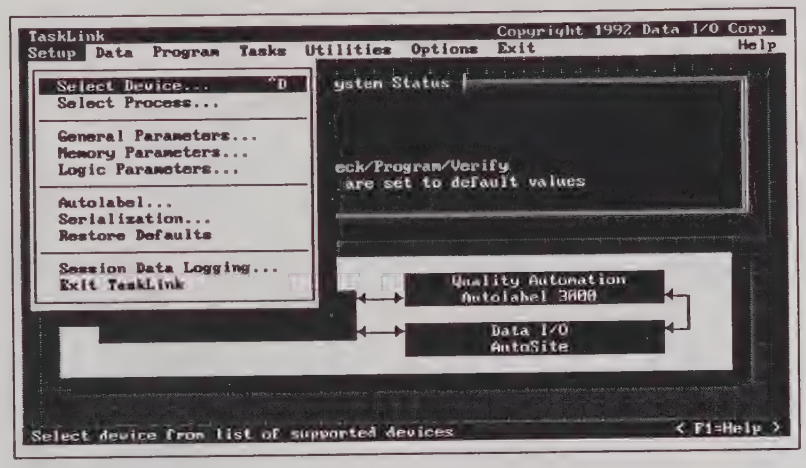
Select Programmer Type

1. Access the **Options** menu.
2. Choose **Programmer Type**. The Programmer Type list box appears.
3. Select the programmer you are using.

Select Device

1. Access the **Setup** menu (see Figure 3-2).
2. Choose **Select Device**. The Select Device dialog box appears.
3. Select the Device Type entry field. Enter the device manufacturer and name or select the desired manufacturer from the Manufacturers list box. A list of devices appears.
4. Select the desired device. TaskLink returns to the **Setup** menu.

Figure 3-2
Setup Menu



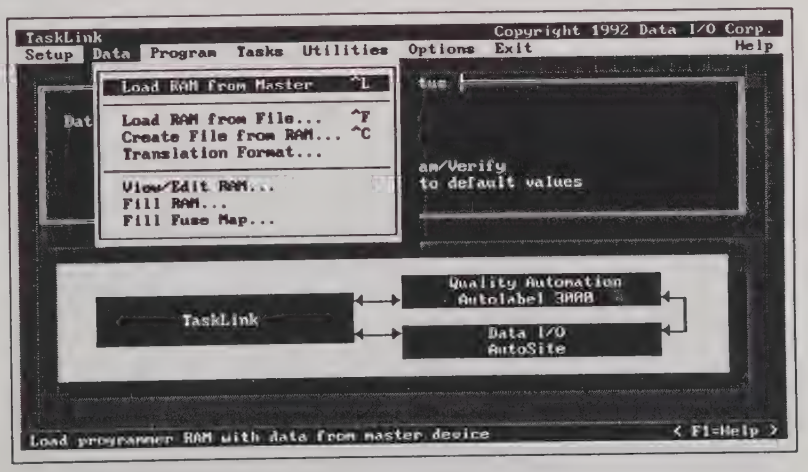
Select Process

1. Choose **Select Process**. The Select Process dialog box appears.
2. Select the desired operation(s) (on = checked; off = unchecked). Enable all the operations you want to perform on the selected device. Select the < OK > pushbutton. TaskLink returns to the **Setup** menu.

Select Data File

1. Access the **Data** menu (see Figure 3-3).

Figure 3-3
Data Menu



2. Select **Load RAM from File**. The Load RAM from File dialog box appears.

3. Select the Data File entry field. Press [F2], or double-click on the entry field, or click on the [↓] to the right of the entry field to access the file selection dialog box. Enter the path and filename of the data file you want in the Filename entry field, or select it from the Dirs/Drives and Files list boxes. Press [↵] or select the < OK > pushbutton to accept the data filename.

   TaskLink returns to the Load RAM from File dialog box and displays the path and filename you just selected.

Select Translation Format

Data is stored in a particular data translation format. When downloading from a Host or PC disk file, you will need to set up TaskLink to use the same translation format.

Note: For detailed information on supported Translation Formats, see your programmer User Manual.

1. TaskLink displays the currently selected translation format in the Translation Format entry field.

   To select a different translation format, select the Translation Format entry field and access the **Translation Format** list. Highlight the desired translation format. Press [↵] or select the < OK > pushbutton to accept the highlighted translation format.

   TaskLink returns to the Load RAM from File dialog box and displays the selected translation format.

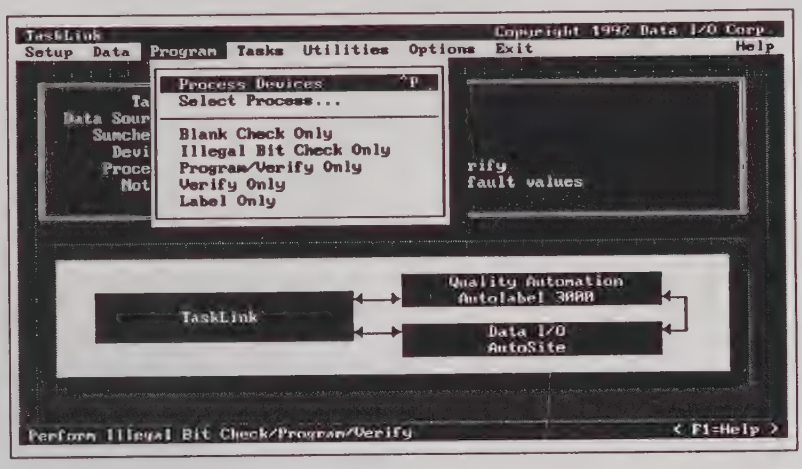
2. Press [↵] or select the < OK > pushbutton to accept the selections in the Load RAM from File dialog box. The Load RAM from File action status box appears showing what percentage of the operation is completed.

   To discontinue the operation, press [Esc].

Process Devices

1. Access the **Program** menu (see Figure 3-4).

Figure 3-4
Program Menu

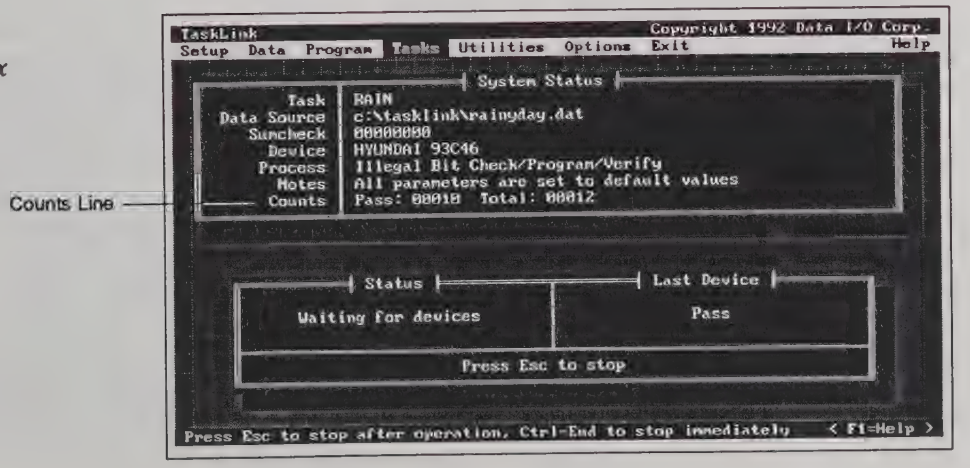


2. Select **Process Devices**. A Process Devices dialog box may appear depending on the settings in **Set Preferences** option of the **Options** menu. Enter the parameters and press ↵.

   TaskLink updates the System Status box, and adds a Counts line at the bottom of it with two categories of number fields: pass and total. TaskLink updates these fields as devices are processed (see Figure 3-5).

   A box appears at the bottom of the screen. This box is divided into two parts: Status and Last Device. The Status portion displays `Waiting for devices .`

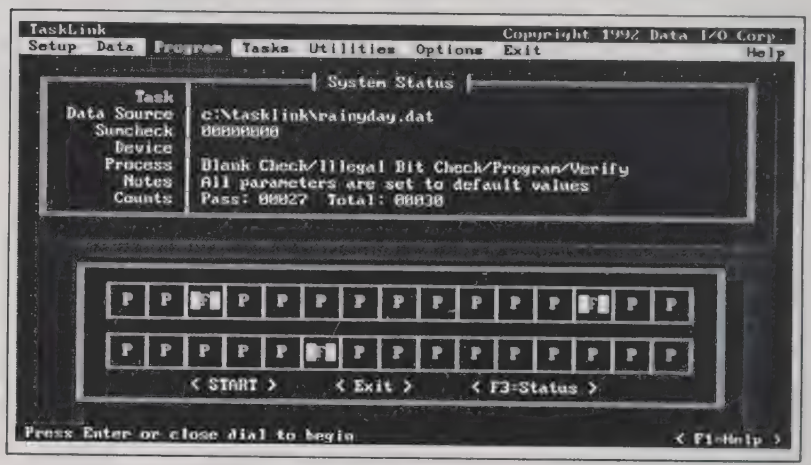
Figure 3-5
System Status Box



3. Put your device(s) in the programmer socket(s) or handler. TaskLink displays an action symbol (rotating pipe) and the words `IN PROGRESS` in the Status portion of the box (see Figure 3-5). When the operation is complete, the Last Device portion of the box displays `PASS` (or an error message if programming failures are encountered), and the Status portion displays `Waiting for devices .`

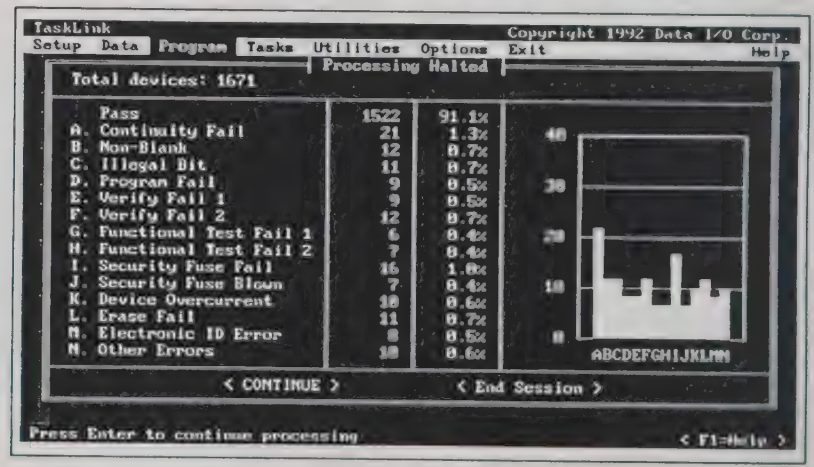
Note: When using a multi-socket programmer, a diagram showing the available sockets appears. The devices in those sockets are represented by a field in each socket. After processing devices, a "P" or Pass in the device field means the device was successfully programmed; an "F" or Fail in the device field means the device was not successfully programmed (see Figure 3-6). When using some multi-socket programmers, the applicable message appears in the device field.

Figure 3-6
Multi-socket System Status Box


TaskLink
Copyright 1992 Data I/O Corp.
Setup Data Program Tasks Utilities Options Exit Help
System Status
Task
Data Source c:\tasklink\rainyday.dat
Suncheck 00000000
Device
Process Blank Check/Illegal Bit Check/Program/Verify
Notes All parameters are set to default values
Counts Pass: 00027 Total: 00030
< START > < Exit > < F3=Status >
Press Enter or close dial to begin
< F1=Help >

When processing is completed or interrupted (by pressing Esc), TaskLink displays a bar graph of processing results (see Figure 3-7).

Figure 3-7
Process Results Bar Graph


TaskLink
Copyright 1992 Data I/O Corp.
Setup Data Program Tasks Utilities Options Exit Help
Processing Halted
Total devices: 1671
Pass 1522 91.1%
A. Continuity Fail 21 1.3%
B. Non-Blank 12 0.7%
C. Illegal Bit 11 0.7%
D. Program Fail 9 0.5%
E. Verify Fail 1 9 0.5%
F. Verify Fail 2 12 0.7%
G. Functional Test Fail 1 6 0.4%
H. Functional Test Fail 2 7 0.4%
I. Security Fuse Fail 16 1.0%
J. Security Fuse Blown 7 0.4%
K. Device Overcurrent 10 0.6%
L. Erase Fail 11 0.7%
M. Electronic ID Error 8 0.5%
N. Other Errors 10 0.6%
40
30
20
10
0
ABCDEFGHIJKLMN
< CONTINUE > < End Session >
Press Enter to continue processing
< F1=Help >

4 *Programming with Tasks and Kits*

For Operators

This chapter provides a brief explanation of Tasks and Kits, TaskLink's online documentation, and the keys used to operate TaskLink in **Operator** mode (the default mode). Then, it outlines the **Operator** mode programming process: starting from the Run Task/Kit dialog box, selecting the Task or Kit, and processing devices.

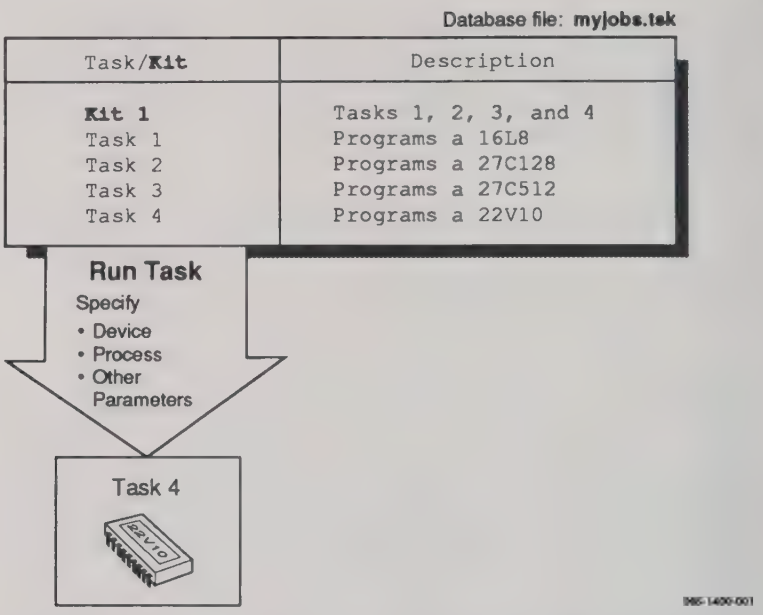
What is a Task?

A Task is a job setup containing all the information necessary for programming and/or testing a particular part. A Task records all the parameters of the job setup from the device type and data file to be entered, to the label text to print and place on the part. When you select a Task from the Run Task/Kit dialog box, only a few final selections need to be made. Figure 4-1 shows the Task programming process.

What is a Kit?

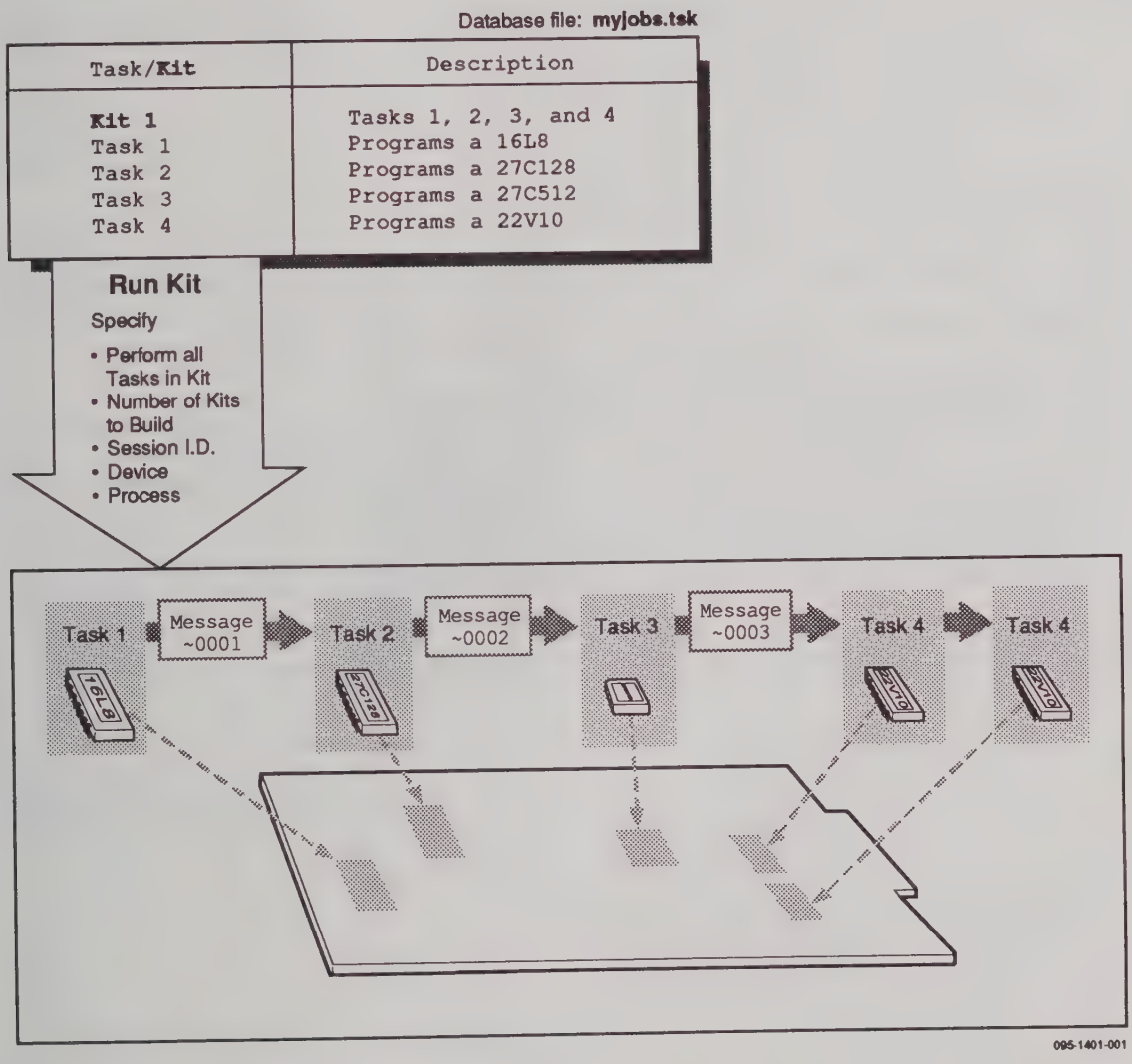
A Kit is a group of Tasks set up to program the various parts needed to build a particular product board. A Kit can contain up to 20 Tasks. When you run the Kit, you can specify the number of Kits you want to build.

Figure 4-1
Task Flowchart



For example, say your board requires four different parts: one each of parts 1, 2, and 3; and two of part 4. The Kit calls out Tasks 1, 2, and 3 at a quantity of one, and Task 4 at a quantity of two. When you run the Kit, TaskLink prompts for the number of Kits to build. If you enter 10, TaskLink directs the programmer and handler to program ten Task 1 devices (1 x 10), then ten Task 2 devices (1 x 10), then ten Task 3 devices (1 x 10), and then 20 Task 4 devices (2 x 10). The relationship between Tasks and Kits is shown in Figure 4-2.

Figure 4-2
Kit Flowchart



The Database File

Tasks and Kits are stored in a file with a .tsk extension. This file can be named any valid DOS filename. Throughout this manual, the .tsk file is referred to as the database file.

About the Online Documentation

For more detailed information on any aspect of TaskLink, refer to the context-sensitive online documentation available by clicking the mouse cursor on the < F1 = Help > pushbutton at the bottom right of the screen, or by pressing [F1] .

Keys and Key Combinations

Use the keyboard and mouse to operate TaskLink. Table 4-1 describes the keys you can use to run TaskLink in **Operator** mode.

Table 4-1
Keys Used in Operator Mode

Key	Functions
General Navigation Keys	
[Tab] and [Shift] + [Tab]	Move the highlight between fields in a dialog box. [Tab] moves to the next field, and [Shift] + [Tab] moves to the previous field.
[↵]	Accepts the current selections in a dialog box. In a multiple-line text entry field, [↵] moves the cursor to the beginning of the next line or to the next selection field.
[Esc]	Cancels a dialog box without saving changes and cancels an operation in process.
[↑] and [↓]	Move the selection cursor in a dialog box.
[Home] , [End] [PgUp] and [PgDn]	Move the cursor to the beginning of the list, end of the list, up one screen or down one screen, respectively.
Information Keys	
[F1]	Accesses context-sensitive help.
[F2]	When pressed from the process devices screen (when the System Status box appears), presents a list of all parameters currently set to non-default values. [F2] also accesses lists from some dialog box entry fields.
[Ctrl] + [F1]	When pressed from the Run Task/Kit dialog box, checks communication between the PC and your programmer.
[Ctrl] + [F2]	When pressed from the Run Task/Kit dialog box, checks communication between the PC and your Quality Automation handler.

Note: Press [Esc] at any time to exit any menu or dialog box without saving, and to display an Exit TaskLink confirmation window.

Getting Started

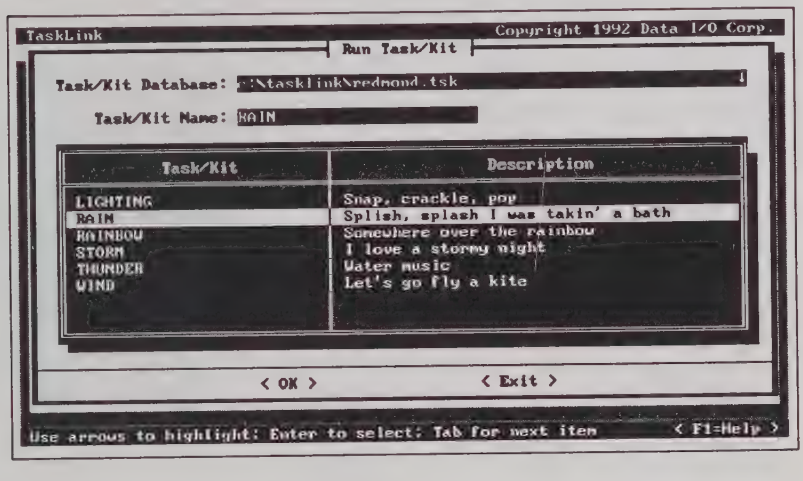
To start TaskLink enter

tl

at the DOS prompt. After a few seconds, the Run Task/Kit list box appears (see Figure 4-3).

The Tasks and Kits available in the current Task/Kit database file (shown in the Task/Kit Database entry field at the top of the dialog box) are listed in the Task/Kit list box.

Figure 4-3
Run Task/Kit List Box



Select Database File

To select a different Task/Kit database file, select the Task/Kit Database entry field. Press F2, or double-click on the entry field, or click on the ↓ to the right of the entry field to access the file selection dialog box. Enter the path and filename of the Task/Kit database file you want in the Filename entry field, or select it from the Dirs/Drives and Files list boxes. Press ↵, or select the < OK > pushbutton to accept the new database filename.

Select Task or Kit

Select a Task or Kit to run from the Task/Kit list box. Kits appear in highlighted text, Tasks appear in unhighlighted text.

Run Kit

When you run a Kit, TaskLink prompts for selections that affect the job setup as a whole and then prompts for Task-related selections. The Kit dialog boxes appear first, followed by the Task dialog boxes (see the following "Run Task" section).

Perform all Tasks in Kit

When you run a Kit, a list of the Tasks in the Kit appears. Select Perform all Tasks in Kit or select one of the Tasks to run (see the following "Run Task" section).

Process Devices Dialog Box

After selecting Perform all Tasks in Kit, a Process Devices dialog box appears prompting for the number of Kits to Build, and a Session I.D.

Note: The Session I.D. is an arbitrary string of printable characters that will appear in the log file for your referencing purposes.

Run Task

Select Device

A Task-specific device list appears. Select the desired manufacturer and device.

Select Process

A list of processes appears. Select the desired process.

Note: A process is the combination of operations to be performed on the device(s). The operations include one or more of the following:

- *Blank Check*
- *Illegal Bit Check*
- *Program*
- *Verify*
- *Label*

Other Prompts

Other prompts may appear depending on the data source selections in the Task(s). Then the action status box appears showing what percentage of the data has been loaded.

Process Devices Dialog Box

Once TaskLink has configured the programmer and handler to program devices (the data file is loaded) according to the Task, a Process Devices dialog box may appear. Enter the parameters and press ↵ or select the < OK > pushbutton.

Process Devices Screen

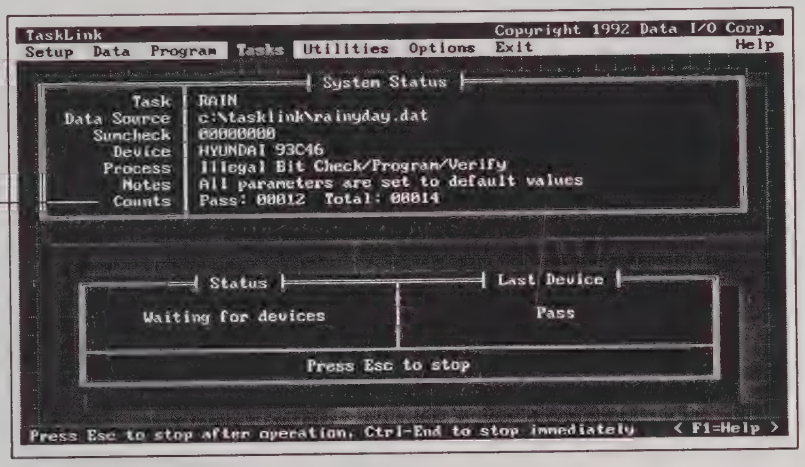
System Status Box

TaskLink updates the System Status box, and adds a Counts line at the bottom of it with two categories of number fields: pass and total. TaskLink updates these fields as devices are processed.

Process Devices Action Field

The process devices action field appears at the bottom of the screen. This field is divided into two parts: Status and Last Device. The Status portion displays `Waiting for devices` (see Figure 4-4).

Figure 4-4
System Status Box

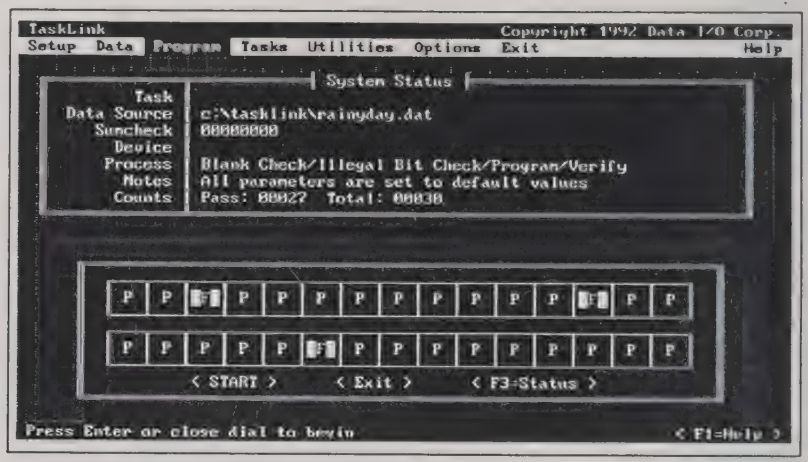


Process Devices

Put your device(s) in the programmer socket(s) or handler. TaskLink displays an action symbol (rotating pipe) and the words `IN PROGRESS` in the Status portion of the box. When the operation is complete, the Last Device portion of the box displays `PASS` (or an error message if programming failures are encountered), and the Status portion displays `Waiting for devices .`

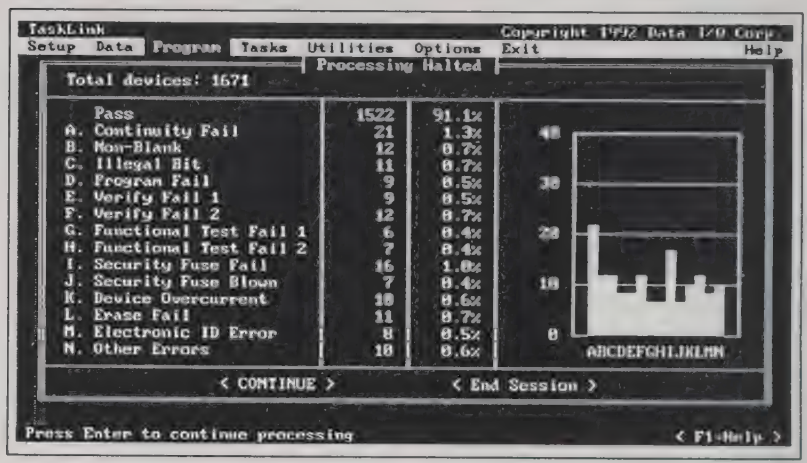
Note: When using a multi-socket programmer, a diagram showing the available sockets appears (see Figure 4-5). The devices in those sockets are represented by a field in each socket. After processing devices, a "P" or Pass in the device field means the device was successfully programmed, an "F" or Fail in the device field means the device was not successfully programmed. When using some multi-socket programmers, the applicable message appears in the device field.

Figure 4-5
Multi-socket System Status Box


TaskLink
Copyright 1992 Data I/O Corp.
Setup Data Program Tasks Utilities Options Exit Help
System Status
Task
Data Source c:\tasklink\rainyday.dat
Suncheck 00000000
Device
Process Blank Check/Illegal Bit Check/Program/Verify
Notes All parameters are set to default values
Counts Pass: 00027 Total: 00030
< START > < Exit > < F3=Status >
Press Enter or close dial to begin
< F1=Help >

When processing is completed (or interrupted by pressing Esc), TaskLink displays a bar graph of processing results (see Figure 4-6).

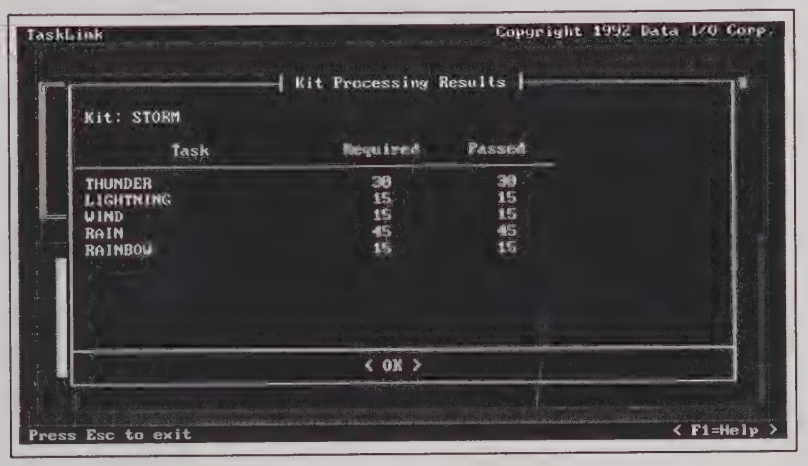
Figure 4-6
Process Results Bar Graph


TaskLink
Copyright 1992 Data I/O Corp.
Setup Data Program Tasks Utilities Options Exit Help
Processing Halted
Total devices: 1671
Pass 1522 91.1%
A. Continuity Fail 21 1.3%
B. Non-Blank 12 0.7%
C. Illegal Bit 11 0.7%
D. Program Fail 9 0.5%
E. Verify Fail 1 9 0.5%
F. Verify Fail 2 12 0.7%
G. Functional Test Fail 1 6 0.4%
H. Functional Test Fail 2 7 0.4%
I. Security Fuse Fail 16 1.0%
J. Security Fuse Blown 7 0.4%
K. Device Overcurrent 10 0.6%
L. Erase Fail 11 0.7%
M. Electronic ID Error 8 0.5%
N. Other Errors 10 0.6%
40
30
20
10
0
ABCDEFGHIJKLMN
< CONTINUE > < End Session >
Press Enter to continue processing
< F1=Help >

Kit Processing Results

When TaskLink has processed the Kit, or if Kit processing is interrupted by pressing Esc , a Kit Processing Results screen appears (see Figure 4-7) listing the Tasks in the Kit, the devices required by each Task, and the devices that were successfully programmed.

Figure 4-7
Kit Processing Results



TaskLink™

Universal Production Automation Software

User Notes — Version 1.4

DATA I/O

984-1030-001

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What's New in Version 1.4

These User Notes describe new features and enhancements added to TaskLink Version 1.4. For more detailed information describing specific features on your Data I/O programming and device handling products, refer to the product User Manual.

Contents of These User Notes

The following sections are included in these User Notes:

- **New Features and Enhancements** — A brief description of the new features.
- **Minimum System Requirements** — Firmware and software requirements to fully support TaskLink software features.
- **Feature Description** — New TaskLink features described in greater detail.
- **Installing V1.4** — Installing TaskLink on your PC.

New Features and Enhancements

The following features have been added to Version 1.4:

- **System Security** — Options can be selected to require that all users enter a password before TaskLink permits access to its menus.
- **Task/Kit Batch Files** — TaskLink reads and executes user created batch files that string Tasks and Kits together into larger jobs.
- **Mass Storage Module (MSM) Support** — Options have been added that allow saving and loading programming data files on the MSM.
- **New Options in the Set Preferences Dialog Box** — Four new options have been added that modify operation when you serialize, check for changes in RAM data, enable the programmer disk file commands, and purge parts from a ProMaster™ Handler.

Minimum System Requirements

ProMaster Firmware Requirements

TaskLink requires the following minimum firmware version to operate with your ProMaster Handler:

- **ProMaster 2000** V3.96 or higher
- **ProMaster 3000/7000** V2.40 or higher

To check your handler's firmware version, put the handler in stand-alone or local mode by pressing [LOW CASE] + [L]. Select **Diagnostics** and then **Optic Test** on the handler's front panel. The firmware version is displayed on the handler menu.

Mass Storage Module Support

The MSM and TaskLink's support are only available on the following programmer products:

- **UniSite™** V4.5 or higher
- **2900** V3.3 or higher
- **AutoSite™, AutoSite/E™, 3900, and ProMaster 2500** V2.3 or higher

Feature Description

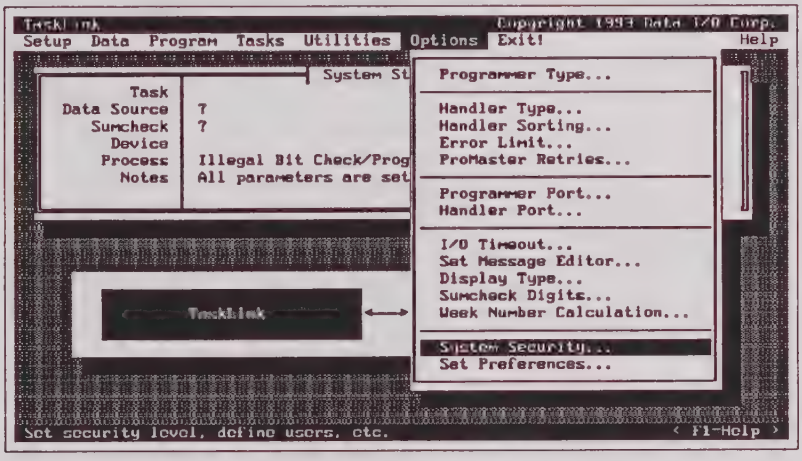
The new features added in V1.4 are described below.

System Security

This new option allows the system administrator to configure TaskLink so that all users (both administrators and operators) are required to enter a password before they can access TaskLink menus and run the system.

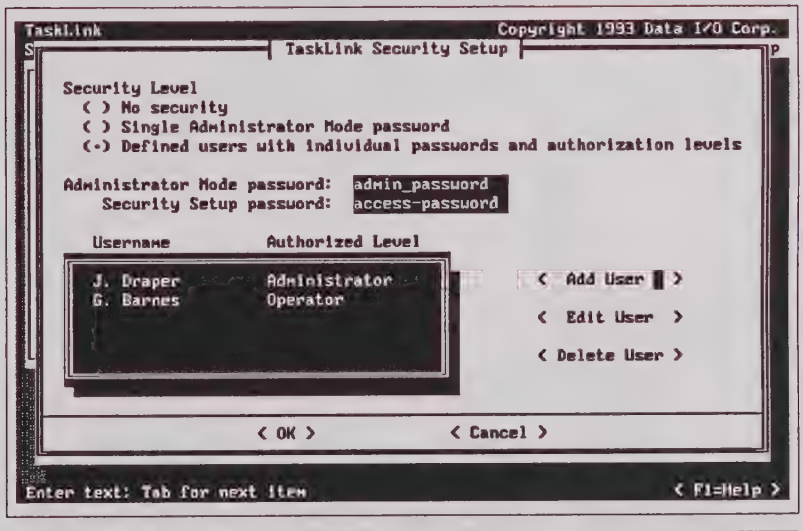
To use the **Security Setup** menu, select **Options** from the Main menu. Then select **System Security...** from the **Options** pull-down menu.

Figure 1
Selecting System Security from the Setup Menu



Press ↵ to access the **TaskLink Security Setup** dialog box.

Figure 2
Selecting Security Options



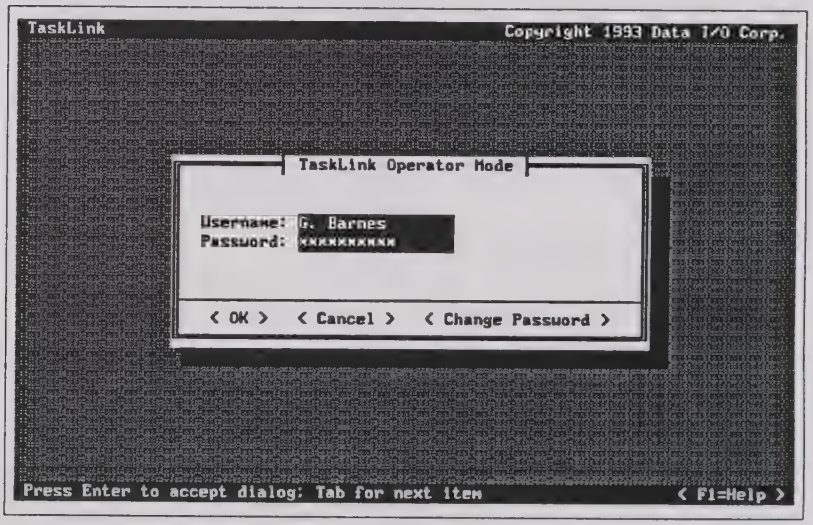
Note: The security system used by TaskLink is DOS based, and is thus restricted by the limitations imposed by that operating system.

Three levels of security are available:

1. **No security** — Equivalent to earlier versions of TaskLink, this level allows any user to access either operator or administrator mode. This is the default security level.
2. **Single Administrator Mode Password** — TaskLink requires a password to enter the administrator mode. One common password is used by any authorized user to access this mode. No password is required to operate TaskLink in operator mode.
3. **Multiple User/Password Mode** — In this mode, each user has a password and must enter it before TaskLink will display the main screen. Users are assigned an authorization level as either an administrator or operator (see Figure 2).

Depending on the security level selected, TaskLink can be configured to require that operators and administrators enter their user name and password before the main screen is displayed (see Figure 3). Users authorized as system operators are restricted to the operator mode and blocked from all administrator mode commands.

Figure 3
Password Screen for System Operators



The default operator password is **password**. Each operator may create a unique password to replace this default, and can change it by selecting <Change Password> from the login dialog box (see Figure 2). Screen prompts guide the user through the new password creation process.

If an operator forgets a password, the system administrator must remove that operator's name from the list of users and reenter it. This allows the operator to start over using the default password.

Administrators who successfully enter their user names and passwords have access to both operator and administrator modes. Press F10 to switch between these modes of operation. Each time you attempt to reenter administrator mode from the operator screens, TaskLink prompts you to enter your password.

When security level 2 or 3 is selected, a password is required to gain access to the **Security Setup** dialog box. Figure 2 shows `access-password` as an example of a password that must be entered before an administrator can access this dialog box.

Creating Task/Kit Batch Files

You can create an ASCII batch file that allows you to run any combination of Tasks and Kits in the order defined in the file. TaskLink reads the batch file, searches the current Task Database file (last file used) for the Task/Kit, and runs it using the normal screens.

Each line in the batch file (unformatted ASCII text file) is only required to have the name of an existing Task or Kit. A sample file would look like this:

```
First_task_name

Second_task_name

First_kit_name
```

If an optional Task Database file name is entered before the Task/Kit name and is terminated by a double colon (::), TaskLink looks for the Task in the specified Database file. The fourth line in the sample file below directs TaskLink to look in a Database file called **Not_current_file** to find a Kit called **Second_kit_name**.

```
First_task_name

Second_task_name

First_kit_name

Not_current_file::Second_kit_name
```

Note: Do not use two consecutive colons in Task or Kit names if you plan to use those Tasks/Kits in batch files.

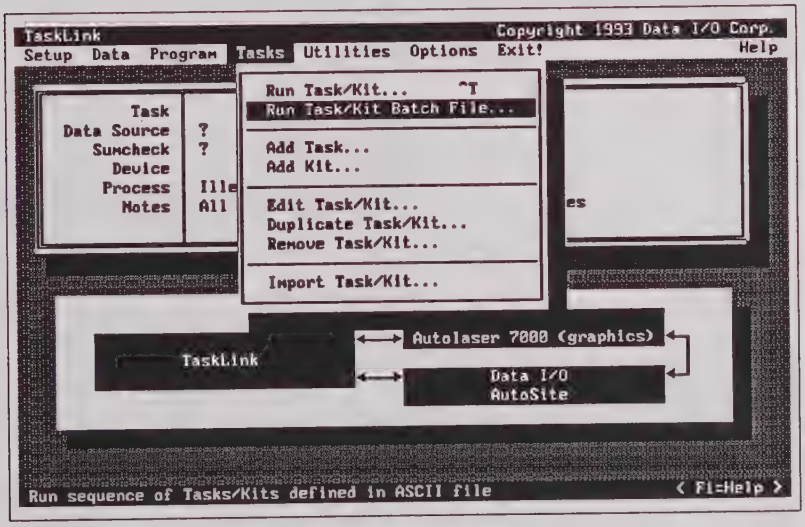


Figure 4
Selecting the Batch File Command

To run a batch file in administrator mode, select **Tasks** from the Main menu. Choose a batch file from the list displayed, and press ↵.

To run a batch file in operator mode, enter:

tl -b*Batchfile_name*

where **-b** starts the batch file mode and **batchfile_name** is any valid DOS file name. TaskLink does not require any specific file extension for batch files.

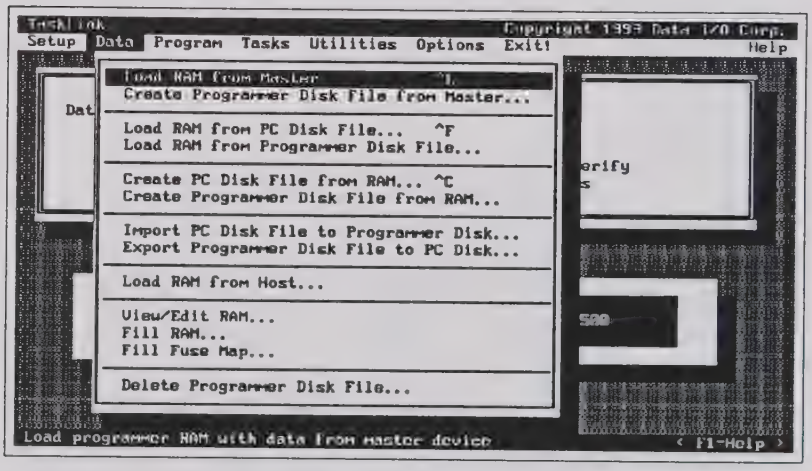
New Commands to Support the Mass Storage Module

The Mass Storage Module (MSM), an internal hard disk, is only available on certain Data I/O programmers (2900, 3900, UniSite, AutoSite, AutoSite/E, and the ProMaster 2500). To support the MSM, TaskLink V1.4 added new commands that allow you to store and retrieve files to the programmer drives (MSM or the programmer's floppy disk drives).

TaskLink's menus and dialog boxes refer to a file stored on one of the internal drives (MSM or floppy) as a **Programmer Disk File** (see Figure 5). Programmer disk file commands are not displayed on the TaskLink menus by default. To see these commands, you must:

- select a programmer/handler that supports programmer drives.
- select the **Enable Programmer Disk Option** from the **Set Preferences** dialog box (see page 8).

Figure 5
New Programmer Disk File Commands



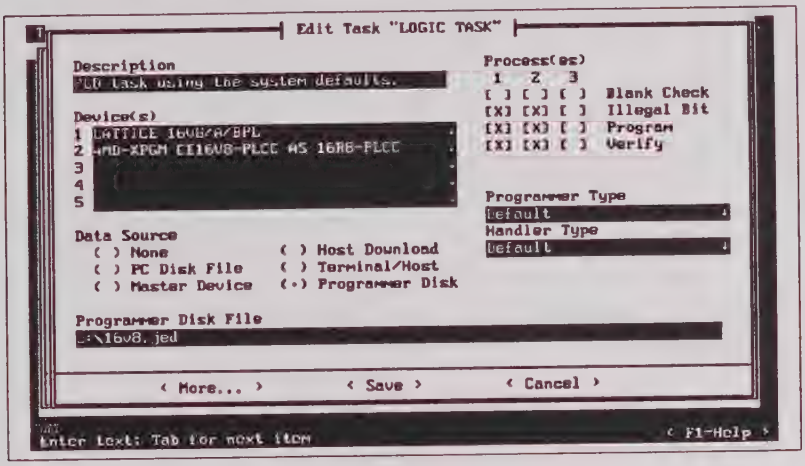
If you select a **Programmer Disk File** command, TaskLink looks for the data file on either the programmer's floppy disk drive (A: or B:, depending on the programmer being used) or on one of the MSM drives (C: or D:). All files on the MSM or the programmer floppy drive(s) using TaskLink are written as unformatted binary files.

Programmer Disk has been added to the **Edit Task** dialog box as an additional **Data Source** (see Figure 6).

TaskLink will display a list of data files from the Programmer Disk(s) on the screen to assist you in selecting the correct Data File name. To see the list, move the cursor to the **Programmer Disk File** field and press F2.

Note: Files from these programmer disks are unformatted data files. The **Translation Format** *field is not on the screen when Programmer Disk File is selected at the data source.*

Figure 6
Edit Task Dialog Box



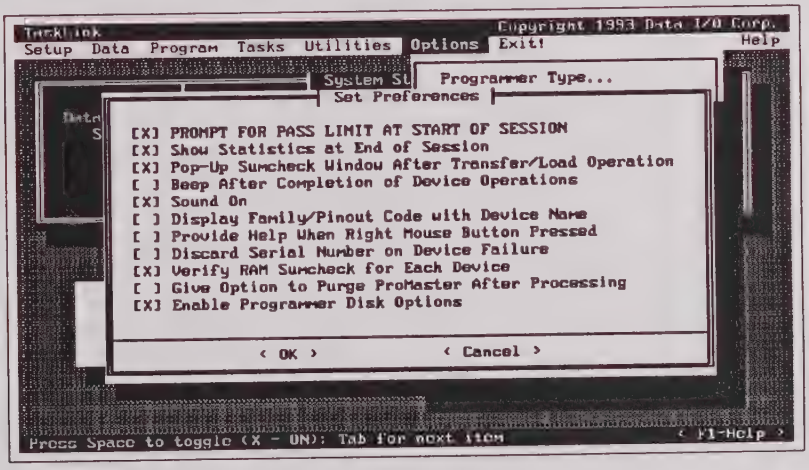
New Set Preferences Options

Four new options have been added to the **Set Preferences** dialog box. To enable any of these options, select **Options** from TaskLink's Main menu. Then select **Set Preferences...** to see the expanded list of choices (see Figure 7).

Discard Serial Number on Device Failure

This option is supported on any programmer/handler that supports serializing devices. When the option is selected, TaskLink does not reuse the serial number assigned to a device that failed to program. If the option is not selected (no X in the check box as shown in Figure 7), the serial number for a device that fails to program is used for the next device that passes the programming operation.

Figure 7
New Commands on the Set Preferences Dialog Box


TaskLink
Copyright 1993 Data I/O Corp.
Setup Data Program Tasks Utilities Options Exit!
Help
Programmer Type...
Set Preferences
[X] PROMPT FOR PASS LIMIT AT START OF SESSION
[X] Show Statistics at End of Session
[X] Pop-Up Sumcheck Window After Transfer/Load Operation
[ ] Beep After Completion of Device Operations
[X] Sound On
[ ] Display Family/Pinout Code with Device Name
[ ] Provide Help When Right Mouse Button Pressed
[ ] Discard Serial Number on Device Failure
[X] Verify RAM Sumcheck for Each Device
[ ] Give Option to Purge ProMaster After Processing
[X] Enable Programmer Disk Options
‹ OK ›
‹ Cancel ›
Press Space to toggle (X = ON); Tab for next item
‹ F1-Help ›

Verify RAM Sumcheck for Each Device

This option, available on all programming/handling products, directs TaskLink to calculate and verify the sumcheck of data in RAM before each device is processed. This will detect any change that may have occurred in RAM as the result of a power glitch or other unobserved interruption of power to the programmer/handler.

The sumcheck calculation and verification process may decrease throughput slightly, depending on the amount of data RAM used to program the selected device.

Note: The Verify RAM Sumcheck... option is not available if you are programming in 'gang' mode when several devices are being programmed simultaneously with different RAM data.

Purge ProMaster After Processing

This option directs the ProMaster 2500, 3000 and 7000 handler to remove all devices from the track sections, moving them to an output tube. The operator does not have to manually remove devices from the tracks and load them, observing correct polarity, into tubes.

TaskLink displays a purge dialog box when:

- there are devices in the track at the end of a Task or programming session.
- a Task has been terminated by the operator.
- the next Task in a Kit uses a different device type.

The **Purge...** dialog box prompts the operator to choose <OK> to start purging parts from the system. If <CANCEL> is selected, any parts in the tracks must be removed by the operator.

Remove all input tubes and make sure that at least one empty output tube is installed before selecting <OK>. TaskLink will send all devices detected in input tubes through the handler system before it completes the purge operation.

Enable Programmer Disk

TaskLink added full support for storing and retrieving data files on the programmer/handler floppy and hard disk drives. Refer to the section called "New Commands to Support the Mass Storage Module" on page 6 of these User Notes for more information on this option. To see the new commands displayed on the TaskLink menus, you must:

- select a programmer/handler that supports programmer disk drives.
- select **Enable Programmer Disk Options** from the **Set Preferences** dialog box.

Installing V1.4 on the PC

Install TaskLink on your PC by performing the following steps:

1. Insert the TaskLink disk into the floppy disk drive on your PC.
2. From your hard disk prompt, enter

   ***drive*:install**

   where *drive* is the disk drive holding the TaskLink disk. Your command line might look something like this:

   C:\b:install

3. Press ↵ . The installation program will prompt you for the information needed to complete the installation.

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